CASE# FY90-1364

SITE ASSESSMENT REPORT
FOR
WESTBANK ASBESTOS
MARRERO, JEFFERSON PARISH, LOUISIANA

September 27, 1991

Prepared for:

J. Chris Petersen
Deputy Project Officer
Emergency Response Branch
EPA - REGION 6

Contract Number: 68-W0-0037



ecology and environment, inc.

12021 LAKELAND PARK BOULEVARD, BATON ROUGE, LOUISIANA 70809, TEL. (504) 291-4698 International Specialists in the Environment





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CASE# FY90-1364

Date:

September 27, 1991

To:

John Martin, OSC

EPA Region 6, Emergency Response Branch

Thru:

J. Chris Petersen, DPO

EPA Region 6, Emergency Response Branch

Thru:

Kishor Fruitvala, TATL

Region 6, Technical Assistance Team

From:

Troy M. Naquin

Region 6, Technical Assistance Team

Subj:

Westbank Asbestos

Marrero, Jefferson Parish, Louisiana

TDD# T06-9010-54C PAN# ELAO375SA

I. INTRODUCTION

On February 6, 1990, Louisiana Department of Environmental Quality (LDEQ) contacted EPA Region 6 Emergency Response Branch (ERB) for assistance in investigating a potential asbestos health hazard in Jefferson Parish, Louisiana, near the westbank of New Orleans. The potential asbestos hazard involved residential areas located in the cities of Westwego, Marrero, and Harvey. On this same day, ERB contacted EPA Technical Assistance Team (TAT) to provide technical assistance and resources for addressing the asbestos problem to LDEQ.

On February 16, 1990, a Technical Direction Document (TDD) was issued to TAT to conduct a site assessment of the Westbank Asbestos site. Specific elements on the TDD include: 1) gather pertinent information from state and local authorities who had begun the investigation, 2) contact local government agencies to obtain historic aerial photographs, 3) develop a

T06-9010-54C

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Sampling Quality Assurance/Quality Control Plan (QASP) addressing air and bulk sampling, 4) coordinate with state and local authorities to track all potential sites including location, areas of asbestos, and degree of threat, 5) locate a certified laboratory to analyze the samples, 6) generate polreps and photodocument sites and activities, and 7) consult with and brief OSC.

II. BACKGROUND

Between 1955 and 1965, a Johns-Manville plant operated in Marrero, Jefferson Parish, Louisiana. The plant produced various types of asbestos containing products with the principal product being asphalt roofing material. An asbestos containing material (ACM) by-product was generated by the plant. The by-product, in aggregate form, was pulverized in a hammer mill and mixed with a filler to form a stable roadbed-like material. The asbestos containing aggregate was offered to local residents for driveway construction at no charge.

On February 8, 1990, a meeting with EPA, TAT, LDEQ, and the Louisiana Department of Health and Hospitals (DHH) was held to discuss the Westbank Asbestos project (Attachment I). The Westbank is defined as the portions of Jefferson and Orleans Parishes on the westbank of the Mississippi River (Attachment A). LDEQ informed EPA and TAT that they had collected 10 bulk samples and one air sample from different locations in the westbank area. The samples were analyzed by LDEQ laboratory using the Polarized Light Microscopy (PLM) method and found the ACM to contain two species of asbestos: Crysotile and Crocidolite. The results of LDEQ's samples are found in Table 1. LDEQ requested EPA to determine if any defined public health endangerment existed from ACM located in roadways and residential EPA properties. LDEO also requested to assess the abandoned Johns-Manville landfill located on the vestbank of the Mississippi River for potential water contamination (Attachment A). EPA informed LDEQ that they would conduct a reconnaissance, and collect all available data for the site before offering LDEQ advice on the situation. The site was defined to include the Johns-Manville plant, landfills, associated roadways, and residences.

III. ACTIONS TAKEN

Reconnaissance

TAT conducted drive-by inspections and photodocumentation of the Westbank Asbestos site on February 8, and 28, and March 7, and 8, 1990. The inactive Johns-Manville plant (Photographs 1 - 7) is located on River Road in Marrero, La. Adjacent to the west end of the plant was an active pipeyard which was constructed on top of an abandoned Johns-Manville landfill. TAT

TABLE 1 LDEQ Analytical Results

Bulk Sample Results

| Sample # | Location | Avg. Chrysotile % | Avg. Crocidolite % | Total Asbestos % | Remainder %* |
|-------------|----------|----------------------|-----------------------|---------------------|--------------|
| 1 | (b) (6) | 27 | 18 | 45 | 55 |
| 2 | | 26 | 27 | 53 | 47 |
| 3 | | 9 | 23 | 32 | 68 |
| 4 | | 17 | 25 | 42 | 58 |
| 5 | | 26 | 28 | 54 | 46 |
| 6 | | 22 | 23 | 45 | 55 |
| 7 | | 11 | 21 | 32 | 68 |
| 8 | | 27 | 29 | 56 | 44 |
| 9 | | 18 | 27 | 45 | 55 |
| 10 | | 30 | 20 | 50 | 50 |

* Non-Fibrous and non-asbestos fibers

Air Sample Results

| Sample # | Location | Results |
|----------|----------|-------------------------|
| 90-01-22 | (b) (6) | .000003 fiber/cc of air |
| | 8 | or |
| | | .0003% asbestos |

observed possible ACM outcropping in the ditch below the pipeyard along River Road (Photograph 33 - 36). North of the plant on the batture was another landfill used by Johns-Manville (Photograph 8 - 14). This fenced landfill was heavily vegetated and posted with asbestos warning plaques (Photograph 15). LDEQ informed TAT that a municipal vater intake for the city of Marrero was located 0.5 miles downstream from the landfill on the westbank of the Mississippi River. TAT and LDEQ noted that the landfill was inundated with several feet of water during a high flood stage, and the fence had an open gate at the southeast corner (Photograph 20 - 21).

EPA and TAT investigated an inactive landfill located on LaPalco Boulevard which was once utilized by Johns-Manville. The unfenced site was heavily vegetated and contained household garbage. TAT observed potential ACM at the surface of the landfill which appeared to be in three main forms: 1) a black, asphalt-like material, 2) a light gray to off white, fibrous material, and 3) variegated transite floor and siding tiles (Photograph 29 - 32). Residential communities and businesses are located around the perimeter of the landfill.

During the reconnaissance of the cities of Westwego, Marrero, and Gretna, TAT observed ACM in the driveways of the residences which had a light to medium gray, cementitious appearance (Photographs 16 -19) and in some areas appeared to be one to three inches thick (Photograph 22). Found mixed in with the ACM were various asbestos products such as transite pipe (Photograph 23). The extent of ACM contamination was undetermined by LDEQ and TAT during the drive-by inspections.

On February 23, 1990, TAT met with LDEQ Analysis Program Manager, Bob Bannah, and LDEQ representative, Steve Scarborough, to plan an air sampling mission to be conducted at the Westbank Asbestos site. After the meeting, TAT and LDEQ visited the site to choose locations for air sampling of airborne asbestos fibers, and conduct further photodocumentation of the site. TAT recommended three air sampling locations in Marrero:

(Photographs 24 - 25), (b) (6)

(Photographs 26 - 27) and (b) (6)

(Photograph 28) (Attachment B).

Sampling

It was agreed by all parties that the EPA Emergency Response Team (ERT) Standard Operating Procedures (SOP) guidelines for Outdoor/Ambient Air Sampling for Asbestos would be used for the sampling mission (See QASP Attachment 2). TAT developed a QASP for the air sampling mission (Attachment J) and procured the necessary air sampling equipment. Gilian Aircon 520 High Volume Air Samplers (Photograph 37) were used to perform the air sampling at a flow rate of approximately 15 liters/minute. Each sampler was pre- and post-calibrated with a Gilian Gilibrator (Photograph 38). Samples were collected on 37mm diameter air sampling cassettes with

4

T06-9010-54C

0.8 micron mixed cellulose ester filters. Sampling stations were arranged at each of the three sites with two upwind and two downwind stations, and one background station in relation to wind direction and location of the ACM. Sampling methodologies and quality assurance/quality control measures are detailed in the OASP.

On March 7, 1990, sampling for airborne asbestos began at the Westbank Asbestos site. Weather conditions during the sampling were partly cloudy skies, temperature in the upper 70's to low 80's, relative humidity 50 -55%, and predominantly southeasterly winds at 18 - 25 miles per hour. Air sampling was conducted at (5) (6) Market n Marrero (Photographs 39 and 41) on March 7, 1990. The ACM was located at the rear of the house in the driveway (Photograph 40). On March 8, 1990, the residence at (b) (6)
St. (Photograph 42) in Marrero was sampled for airborne asbestos (Photographs 46-48). The ACM was located in the driveway (Photograph 43) and in the back yard (Photograph 44). The ACM in the driveway appeared to be 0.5 - 0.75 inches thick (Photograph 45). A light drizzle started near the end of the sampling period, although, the sample time was sufficient to allow TAT to collect valid samples for analysis. On March 9, 1990, air sampling was conducted at (b) (6) Photograph 49) in Marrero, when a heavy rainfall began and suspended sampling at this site. The sampling period was not long enough for valid samples to be collected; therefore, Analytical results of the air sampling the samples were discarded. conducted revealed all samples to be below the detection limit and the established EPA action level of 0.1 fibers/cc, which is one-half the Occupational Safety and Health Administration (OSHA) standard for an 8 hour time weighted average (TWA) (Table 2).

5

T06-9010-54C

TABLE 2
Summary of Westbank Asbestos Analytical Results

Results of Phase - Contrast Microscopy Analysis

| Sample ID | Fibers /c.c. Observed | No. of Fields Observed | Fibers Per Filter | Volume of Air (Liters) | Fibers /c.c. Per c.c. of Air |
|-----------|-----------------------------|------------------------------|-------------------------|------------------------------|---------------------------------------|
| GH-01 | 1 | 100 | 490 | 3587 | <0.001* |
| GH-02 | 4 | 100 | 1962 | 3551 | <0.001 |
| GH-03 | 2 | 100 | 981 | 3592 | <0.001 |
| GH-04 | 1 | 100 | 490 | 3557 | <0.001 |
| GH05 | 2 | 100 | 981 | 3592 | <0.001 |
| GH-06 | 0 | 100 | <490 | 3601 | <0.001 |
| WM07 | 0 | 100 | <490 | 3445 | <0.001 |
| WM-08 | 0 | 100 | <490 | 3442 | <0.001 |
| WM-09 | 2 | 100 | 981 | 3453 | <0.001 |
| WM-10 | 4 | 100 | 1962 | 3449 | <0.001 |
| WM-11 | 1 | 100 | 490 | 3429 | |

^{*} Quantitation limit is 0.001 fibers/c.c. of air

Results of Transmission Electron Microscopy Analysis

| Sample ID | Analytical Results | |
|-----------|------------------------------------------------------------|---|
| GH-02 | Unable to analyze due to high amount of particulate matter | f |
| GH-05 | Below Detection Limit | |
| WM-10 | Below Detection Limit | |

ATTACHMENTS:

- A. Site Locations Map
- B. Site Sketches (3 Pages)
- C. Photolog

 - Panorama (8 Pages)
 Regular (18 Pages)
- D. Aerial Photograph
- E. Unused Photographs and Negatives
 P. Records of Communication (51 Pages)
 G. Copy of Logbook (Pages 1 45)
 H. Polrep #1
 I. Project Meeting Attendence Sheet

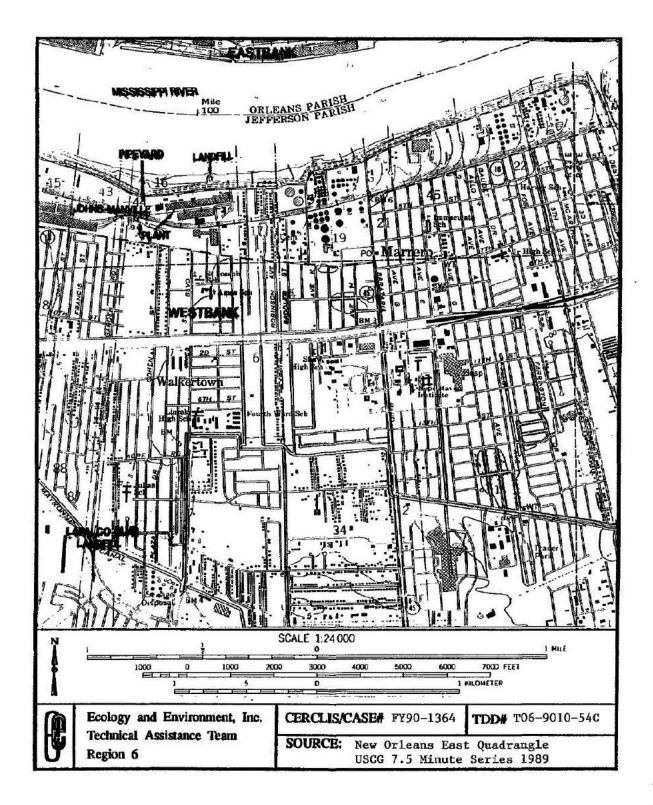
- J. Sampling QA/QC Plan (60 Pages)
 K. Copy of Original TDD# T06-9002-08 and Amendment A under Contract #68-01-7368 (3 Pages)
- L. Copy of TDD# T06-9010-54 and Amendments A, B, and C (6 Pages)

7

T06-9010-54C

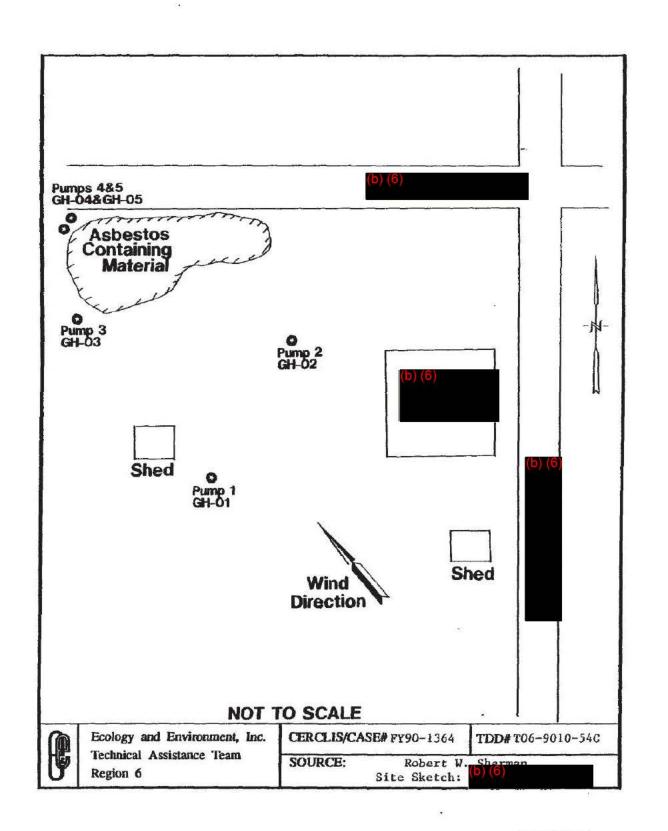
ATTACHMENT A Site Locations Map

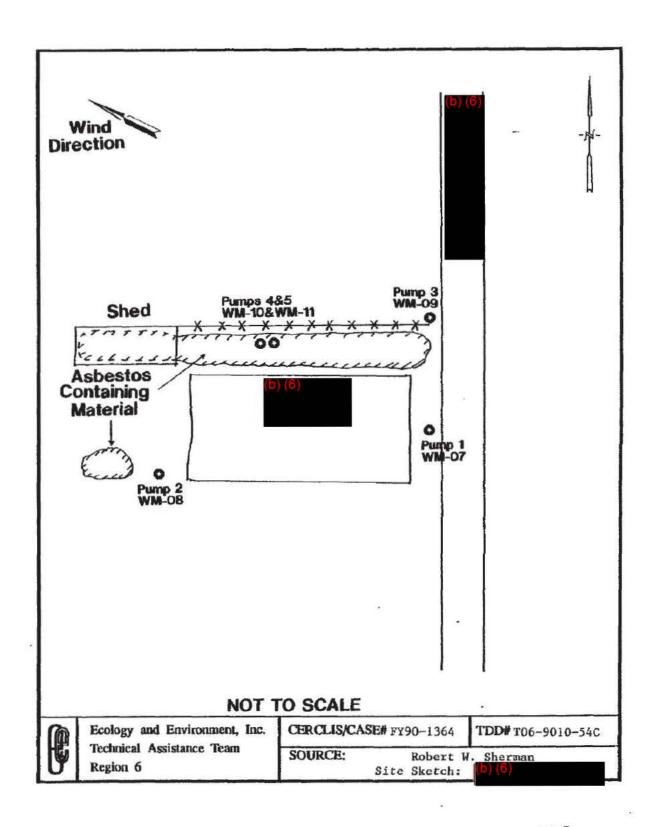
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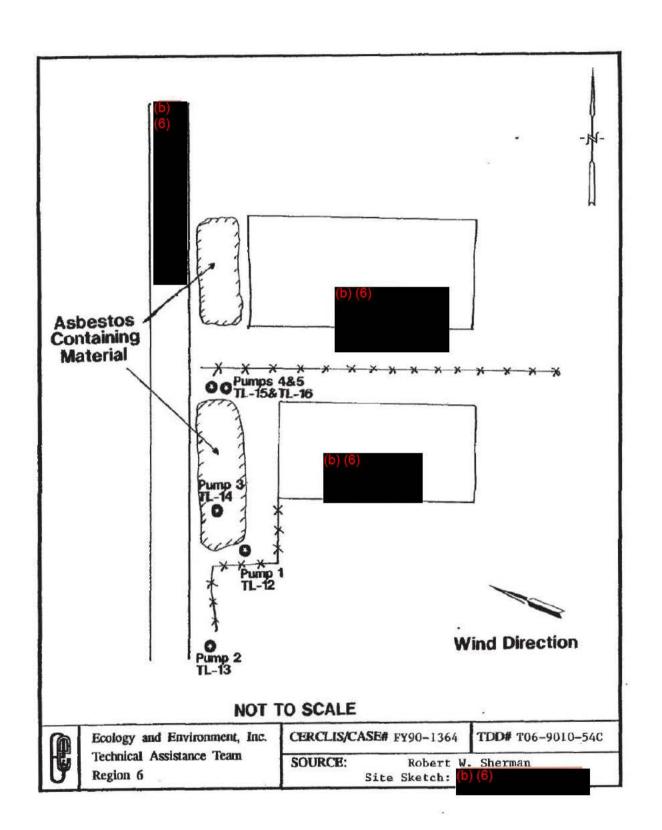


ATTACHMENT B Site Sketches (3 Pages)

T06-9010-54C







ATTACHMENT C

- Photolog

 1. Panorama (8 Pages)

 2. Regular (18 Pages)

T06-9010-54C

PHOTOLOG 1

PANORAMA (8 Pages)

T06-9010-54C

PHOTOLOG 2

REGULAR (18 Pages)



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO #'s: 1-2 DATE: 02/08/90 TIME: 1556 DIRECTION: SE

PHOTOGRAPHER: T. NAQUIN/R. FERRELL



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO #'s: 3-4 DATE: 02/08/90 TIME: 1556 DIRECTION: SE-S

PHOTOGRAPHER: T. NAQUIN/R. FERRELL



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO #'s: 5-6 DATE: 02/08/90 TIME: 1556 DIRECTION: S-SW

PHOTOGRAPHER: T. NAQUIN/R. FERRELL



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO #: 7 DATE: 02/08/90 TIME: 1556 DIRECTION: SW

PHOTOGRAPHER: T. NAQUIN/R. FERRELL



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO #'s:8-9 DATE: 02/08/90 TIME: 1558 DIRECTION: NE

PHOTOGRAPHER: T. NAQUIN/R. FERRELL

PANORAMA OF JOHNS-MANVILLE LANDFILL ON THE WESTBANK OF THE MISSISSIPPI RIVER



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO # 's:10-11 DATE: 02/08/90 TIME: 1558 DIRECTION: NE-N

PHOTOGRAPHER: T. NAQUIN/R. FERRELL

PANORAMA OF JOHNS-MANVILLE LANDFILL ON THE

WESTBANK OF THE MISSISSIPPI RIVER



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO # 's:12-13 DATE: 02/08/90 TIME: 1558 DIRECTION: N-NW

PHOTOGRAPHER: T. NAQUIN/R. FERRELL

PANORAMA OF JOHNS-MANVILLE LANDFILL ON THE WESTBANK OF THE MISSISSIPPI RIVER



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO # 's:14 DATE: 02/08/90 TIME: 1558 DIRECTION: NW

PHOTOGRAPHER: T. NAQUIN/R. FERRELL

PANORAMA OF JOHNS-MANVILLE LANDFILL ON THE WESTBANK OF THE MISSISSIPPI RIVER



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 15 DATE: 02/08/90 TIME: 1555 DIRECTION: N

PHOTOGRAPHER: T. NAQUIN/R. FERRELL

ASBESTOS WASTE DISPOSAL PLAQUE ON THE LANDFILL FENCE ON THE MISSISSIPPI RIVER



PHOTO#: 16 DATE: 02/08/90 TIME: 1610 DIRECTION: DOWN PHOTOGRAPHER: J. MARTIN/T. NAQUIN

LDEQ SAMPLE WESTWEGO, LA



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 17 DATE: 02/08/90 TIME: 1614 DIRECTION: W

PHOTOGRAPHER: J. MARTIN/T. NAQUIN

(D) (O

DRIV SUSPECTED OF

CONTAINING ASBESTOS



PHOTO#: 18 DATE: 02/08/90 TIME: 1616 DIRECTION: DOWN PHOTOGRAPHER: J. MARTIN/T. NAQUIN

ROADFILL AT



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 19 DATE: 02/08/90 TIME: 1617 DIRECTION: S

PHOTOGRAPHER: J. MARTIN/T. NAQUIN

(b)(6)



PHOTO#: 20 DATE: 02/28/90 TIME: 1219 DIRECTION: NW PHOTOGRAPHER: T. NAQUIN/M. EZELL

JOHNS-MANVILLE LANDFILL ALONG THE MISSISSIPPI RIVER FLOODED WITH HIGH WATER AND A FENCE WITH AN OPEN GATE



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 21 DATE: 02/28/90 TIME: 1219 DIRECTION: NW

PHOTOGRAPHER: T. NAQUIN/M. EZELL

JOHNS-MANUILLE LANDFILL ALONG THE MISSISSIPPI RIVER FLOODED WITH HIGH WATER AND A FERCE WITH AN OPEN GATE



PHOTO#: 22 DATE: 02/28/90 TIME: 0940 DIRECTION: E

PHOTOGRAPHER: T. NAQUIN/M. EZELL

CLOSEUP OF THE SSIDENCE AT

DRIVEWAY



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 23 DATE: 02/28/90 TIME: 0942 DIRECTION: E

PHOTOGRAPHER: T. NAQUIN/M. EZELL

DRIVEWAY OF DO SUSPECTED ASBESTOS PRODUCT



PHOTO#: 24 DATE: 02/28/90 TIME: 1145 DIRECTION: W

PHOTOGRAPHER: T. NAQUIN/M. EZELL

DRIVEWAY A



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 25 DATE: 02/28/90 TIME: 1147 DIRECTION: E

PHOTOGRAPHER: T. NAQUIN/M. EZELL

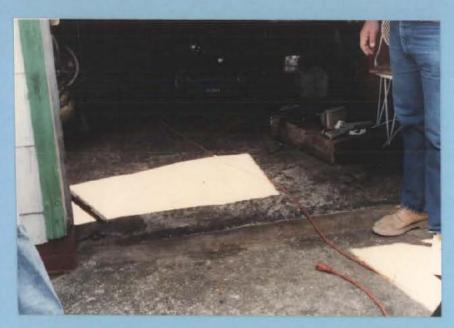
PULP-LIKE MATERIAL FOUND IN BACK



PHOTO#: 26 DATE: 02/28/90 TIME: 1203 DIRECTION: W

PHOTOGRAPHER: T. NAQUIN/M. EZELL

DRIVEWAY AT



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 27 DATE: 02/28/90 TIME: 1210 DIRECTION: W

PHOTOGRAPHER: T. NAQUIN/M. EZELL

INSIDE SHED AT



PHOTO#: 28 DATE: 02/28/90 TIME: 1036 DIRECTION: NW PHOTOGRAPHER: T. NAQUIN/M. EZELL

DRIVEWA



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 29 DATE: 03/07/90 TIME: 1608 DIRECTION: DOWN PHOTOGRAPHER: T. NAQUIN/M. EZELL

SUSPECT WHITE ACM AT THE LANDFILL ON

LAPALCO BLVD



PHOTO#: 30 DATE: 03/07/90 TIME: 1612 DIRECTION: DOWN PHOTOGRAPHER: T. NAQUIN/M. EZELL

BLACK ROOFING MATERIAL AT THE LANDFILL ON LAPALCO BLVD



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 31 DATE: 03/07/90 TIME: 1612 DIRECTION: DOWN PHOTOGRAPHER: T. NAQUIN/M. EZELL

PIECES OF TRANSITE BOARD AT THE LANDFILL ON LAPALCO BLVD



PHOTO#: 32 DATE: 03/07/90 TIME: 1616 DIRECTION: DOMN PHOTOGRAPHER: T. NAQUIN/M. EZELL

ROOFING AND TRANSITE BOARD MATERIALS AT THE LANDFILL ON LAPALCO BLVD



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 33 DATE: 03/08/90 TIME: 1503 DIRECTION: SW

PHOTOGRAPHER: T. NAQUIN/M. EZELL

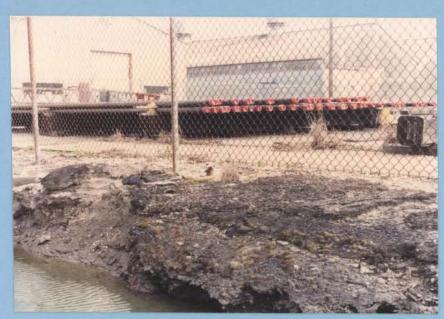
PIPEYARD NEAR JOHNS-MANVILLE ON RIVER ROAD



PHOTO#: 34 DATE: 03/08/90 TIME: 1502 DIRECTION: SE

PHOTOGRAPHER: T. NAQUIN/M. EZELL

ROOFING MATERIAL OUTCROPPING BY THE PIPEYARD DITCH ON RIVER ROAD



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 35 DATE: 03/08/90 TIME: 1502 DIRECTION: SE

PHOTOGRAPHER: T. NAQUIN/M. EZELL

ROOFING MATERIAL OUTCROPPING BY THE

PIPEYARD DITCH ON RIVER ROAD



PHOTO#: 36 DATE: 03/08/90 TIME: 1502 DIRECTION: S

PHOTOGRAPHER: T. NAQUIN/M. EZELL

BLACK, LAYERED ROOFING MATERIAL OUTCROPPING AT PIPEYARD DITCH ON RIVER ROAD



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 37 DATE: 03/07/90 TIME: 1309 DIRECTION: E

PHOTOGRAPHER: T. NAQUIN/M. EZELL

GILIAN PUMPS SAMPLING 15 L/min



PHOTO#: 38 DATE: 03/07/90 TIME: 1034 DIRECTION: NW PHOTOGRAPHER: T. NAQUIN/M. EZELL

CALIBRATION OF PUMPS WITH GILIBRATOR



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 39 DATE: 03/07/90 TIME: 1311 DIRECTION: SE PHOTOGRAPHER: T. NAQUIN/M. EZELL

AIR SAMPLING AS





PHOTO#: 40 DATE: 03/07/90 TIME: 1307 DIRECTION: E

PHOTOGRAPHER: T. NAQUIN/M. EZELL

ACM AREA IN BA BEING SAMPLED



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 41 DATE: 03/07/90 TIME: 1305 DIRECTION: S

PHOTOGRAPHER: T. NAQUIN/M. EZELL

AIR SAMPLING A



PHOTO#: 42 DATE: 03/08/90 TIME: 1410 DIRECTION: W

PHOTOGRAPHER: T. NAQUIN/M. EZELL

AUTOMOBILES IN DRIVEWAY





PAGE#: 15 TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 43 DATE: 03/08/90 TIME: 1410 DIRECTION: W

PHOTOGRAPHER: T. NAQUIN/M. EZELL

WORKING ON LAWMMOWERS

DI FUNES T U S



PHOTO#: 44 DATE: 02/28/90 TIME: 1212 DIRECTION: NW

PHOTOGRAPHER: T. NAQUIN/J. SHARP

ACM FOUND IN BACKYARD OF STREET





TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 45 DATE: 02/28/90 TIME: 1206 DIRECTION: N

PHOTOGRAPHER: T. NAQUIN/E. EZELL

REAR OF DRIVEWAY NEAR SHED

STREET



PHOTO#: 46 DATE: 03/08/90 TIME: 1033 DIRECTION: S

PHOTOGRAPHER: T. NAQUIN/M. EZELL

FRONT AREA/UPWIND SAMPLE LOCATIONS AT (b) (6)



PAGE#: TDD#:

06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 47 DATE: 03/08/90 TIME: 1035 DIRECTION: NW

PHOTOGRAPHER: T. NAQUIN/M. EZELL

DRIVEWAY AT EET DOWNWIND SAMPLE LOCATION



PHOTO#: 48 DATE: 03/08/90 TIME: 1035 DIRECTION: S

PHOTOGRAPHER: T. NAQUIN/M. EZELL

BACKYARD/DOWNWIND SAMPLE STREET



TDD#: 06-9010-54C

SITE NAME: WESTBANK ASBESTOS

PHOTO#: 49 DATE: 03/09/90 TIME: 1025 DIRECTION: E

PHOTOGRAPHER: T. NAQUIN/M. EZELL

b) (6)

ET

ATTACHMENT D Aerial Photograph

T06-9010-54C

ATTACHMENT E Unused Photographs and Negatives

T06-9010-540

ATTACHMENT F
Record of Communication
(51 Pages)

| Conversation with: | | bate 2 17 190 | |
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| none (214) 542 | | | PAN NO. T | 6-9002-0 | <i>PA</i> B |
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| Conversation with: | Date 7 1 9 1 9 | | |
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| Name Chris June | time 0900 AM/PM | | |
| Company Eas | | | |
| Address 1509 main St | tAt Name Loga. nagun | | |
| Oallos, TX 75201 | DAN NO THA 0325 CAA | | |
| Phone (214) 742-6601 | PAN NO. TLA 037554A 100 NO. 04-8002-08 | | |
| Subject PAN number for West Bank | abeato | | |
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| Notes: call to get PAN | member for West park askerton | | |
| mosel. gum informed | TAT that the PAN number | | |
| in TLA Ø375 SAA. | | | |
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| Conversation with: | Date 2 / 9 / 90 |
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| Name Kanneth Jame | time 1435 AM/PM |
| Company Dest of Public Health | |
| Address Po. Box 60630 | tAt Name Trook naquin |
| New Orleans, LA 70160 | |
| Phone (504) 568 - 8536 | PAN NO. TEA 03755AA. |
| Subject West Back aslestos | Several responsability in responsability in the responsability of |
| No. 72 3 50 | |
| Notes: Callal M. Sanie to | make sure to check with |
| EPA Publi Relations before | HE - |
| about the West Back asleston | and to |
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| Conversation with: Name Ochoo Bondle | Date 7 _ 7 _ 7 _ 7 | | |
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| Company LDEQ | Time 17 3 S | | |
| Address 11720 arilina Mighway | tathama A n Ocausi | | |
| Batan Pouze, LA 70817 | | | |
| Phone (504) 295 - 8900 | PAN NO. TLA 0375 SAA | | |
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| Subject west Bank asherton gro | The state of the s | | |
| 1 2 0 1 | | | |
| Notes: Will call back | | | |
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| Conversation with: | Date 2.1. 9 1. 90 |
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| Name Debra Dendily | time1.S. / 0 AM/PM |
| Company LOEQ - air quality | |
| Address 11720-audine Highway | tAt Name From nague |
| auton Rouge, LA 70817 | 190 |
| Phone (504) 295 - 8900 | PAN NO. TLAO375 SAA 100 NO. 0.0-2002-08 |
| Subject West Bank asberter grownt | |
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| Notes: _ Callad to inform TAT . | about the West Bank |
| assesta grant. TAT requeste | |
| O ain & Dull saugh nethod | - used PCm for both |
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| and a scape will be sont | |
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| Conversation with: | Date_ 2_/_/2/_9'0 |
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| Name John Motting -OSC | Time//AM/PM |
| Company EPA - Regumb | |
| Address 1445 Ross avenue | TAT Name dog n. Naguin |
| Dallas TX: 75202 | 1770 1780 1890 1890 1890 1890 1890 1890 1890 18 |
| Phone (214) 655-2270 | PAN NO. TLAGS SSAA |
| Subject West Bank Oshestos | , |
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| Notes: TAT Raguin regart to | John mostri about the |
| methodology used be air | + hull samplein ha whenter |
| as resist on Ochan Band | bull sanding for aslestos ily of DEO air quality Dirision. T to stay put told further |
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| Conversation with: | Date 2 / 13 / 90 |
|--------------------------------|-----------------------------------------------------------|
| Name John Martin -OSC | Time 08 10 AM/PM |
| Company EPA Region 6 | <u></u> |
| Address 1445 Ross anome | TATNeme Trong M. Maguin |
| Dallas, TX 75202 | |
| Phone (214) 655-2270 | PAN NO. TLA0375 SAA TDD NO. 96-9902-98 |
| Subject West Bank asbertos ain | |
| | - 0 |
| Notes: John Monter ose called | to inform THT to investigate |
| the type of pumps and m | inimum volume used to called what resources the state has |
| then an sample sind out | what resources the state has |
| and what tree of lab accor | ediction they Inc. |
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| Conversation with: | Date 2 / 13 / 90 | |
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| Name Debra Bandily | Time 0 83 I AM/PM | |
| Company LDEQ - air quality | | |
| Address 17720 ailine Highway Batan Pouge 1CA 70817 | TATNOME Troy M. Naguer | |
| | - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 | |
| Phone 295-8950 | PAN NO. TLA03755AP TDD NO. 06-7052-08 | |
| Subject West Bank askertos | 100 NO267002-08 | |
| Subject List want usbelles | C | |
| Notes: TAT attempted to content | Debra Bendily result was | |
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| Conversation with: | Date 2 / 13 / 90 |
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| Name Delna Bondely | Time 0904 AM/PM |
| Company LOEQ - air quality | 14 |
| Address 11720 anline Highway | TATNAME Zroy M. Naguin |
| Oaton Rouge, LA 70817 | * |
| Phone 295 - 895 o | TAN NO. TLA 08765AA |
| Subject West Bank asbests | |
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| Notes: TAT Naguin called LDEQ | analyst Debra on information |
| about the resources and te | slegie used for air montoury |
| at the West Bank anderton s | te Osbra resorted to Tro |
| that they was Harli yel. | |
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| Conversation with: | Date 2 / 13 / 20 |
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| Name John natur OSC | Time |
| Company SPA Region 6 | * |
| Address 1445 Ross Overus | TAT Name Zray M. Nagun |
| Dallas TX: 75202 | TING TINGS TESAR |
| Phone (214) 655 - 2270 | PAN NO. TLA 03755AA |
| Subject West Bank asbests | |
| | 1 1 1 1 1 1 |
| | to TAT what the he discovered |
| from Region 1 . Region 2 s | and they used the Topicology |
| Brofile for asbesta ATSOR (H | ealth Effect) or they tested for |
| frisblitte by touch and to | ted for sust. John requested Tho |
| to ment upon air quality | end get info from Debra Benely. |
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| Conversation with: | Date 2 / 13 / 20 |
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| Name John Mati - OSC | Time 10.2.5 AM/PM |
| Company EPA Region 6 | 20 E |
| Address 1445 Pross avenue | TAT Name Zroy M. Nagun |
| Dollas, TX 75202 | - 100 mm |
| Phone (214) 655-2270 | PAN NO. TLA 03755AA |
| Subject West Bank asbests | |
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| Notes: TAT called to my goh Derly of LOEG - an quelty the West Bank asherter grice | - matriosa that Deline |
| Deally of LOEG - an Guelty | will sand all information on |
| the West Bank asheston gringe | et when finished |
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| Conversation with: | Dale 2 / 15 / 20 | |
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| Name Della Boulla | Time 0909 AM/PM | |
| Address 11720 airline dishway | | |
| | TATName Zroy M. Naguin | |
| Oston Bonga, LA 70817 | 2 | |
| Phone 295 - 8950 | PAN NO. TLA 03755AA | |
| Subject West Bank aslestes | TOONO. | |
| Subject 122 | | |
| Notes: Sangle results will be | the which reart and Deblie | |
| requested TAT to send You & | i Dut and the | |
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| Conversation with: | Date 2/15/90 |
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| Name John Martin OSC | Time /240 AM/PM |
| Company EPA Region 6 | 2 |
| Address 1445 Ross avenue | TATName Znag n. Daguni |
| Dallas, Tx 75202 | PAN 110 TIN 0275 SAA |
| Phone (214) 655-2270 | PAN NO. TLA \$375 SAA TDD NO. 06-9002-08 |
| Subject West Bank asbestos | |
| Notes: John monter called TA | - Require to inform him |
| that TAT hatt | ting air montoring for |
| askester with possible assist | tonce from ERT. John also |
| will be sending a new quil | lance book to TAT for soviar. |
| Jan regretal TAT to call | Food Thology about |
| acrial plates. John would be | coming down to Boton Rouge |
| pron. | |
| | 20 million - Constant - Branch (1900) (1900) (1900) (1900) - 1900) (1900) (1900) (1900) (1900) (1900) (1900) (1900) 27 |
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| Conversation with: | Dale 2 1 15 1 98 | |
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| Name Zodl Zhloden | time | |
| Company LDEQ - Inactio & aboutoned state | | |
| Address P.O. Box 44066 - Capital State | TAT Name Zroy M. Naguin | |
| Baton Prouse LA | ¥ 2000 | |
| Phone (504) 342 - 8925 | PAN NO TLA 03765AA | |
| Subject West Bank asbestes | 100 NO | |
| Subject 10200 Company | | |
| attended to the state of the st | al to carrie at the | |
| Notes: attempt to contact Told wind | + : : : : : : : : : : : : : : : : : : : | |
| Why as and and a now | I in , will return call. | |
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| Conversation with: | Dale 21 221 90 | |
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| Name LDEQ secretary | Time 1500 AM/PM | |
| Company LOEQ-Inette & april and Ste | | |
| Address G.D. Box 44066 | TAT Name Log M. Nagun | |
| Boton Rouge, LA 70804 | 724 | |
| Phone (504) 342 - 8925 | PAN NO. TLA 03765AA | |
| Subject West Bank aslestes | | |
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| Notes: attempted to contact Tod | I Thibodeaux of DEQ | |
| Imactine 2 abandoned sites o | about acrial shots ag | |
| the West Bank anon - Jeffe | on Ravial - Tall was | |
| not available - will return | | |
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| Note: Color of the state of the | Conversation with: | Dale 2 1.22 1.90 |
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| Company EPA Region 6 Address 1445 Ross arms TATNAME Tray M. Naguri Dollas ITH 75202 PAN NO. TLA B\$ 755AA TDD NO. Subject West Bank Aubstra Notes: attental to contact John Mathematical and another lines West Bank aberta John an another lines CC: | Name EPA Sectar | Time 1503 AM/PM |
| Address 1445 Pass ask TATNAME Tray M. Nagun Dallos, TX 75202 PAN NO. TLA 655AA TDD NO. 06-9002-0B Subject West Bank askets West Bank askets - John mater orc about the West Bank askets - John was an another line | | |
| Phone (214) 655-2270 Phone (214) 655-2270 Subject West Bank arbeits Notes: attended to contact John Materia are about the West Bank arbeits, John Materia an another lines | Address 1445 Ross Prome | TATNOMO Zian M. Naguin |
| Phone (214) 655-2270 Subject West Bank asbests Notes: attended to contact John mosts or about the West Bank asbests - John was an another line CCC: | | |
| Subject West Bank asbests Notes: attempted to contact John months one about the West Bank asbests - John was an another line. | | PAN NO. TLA 0375 SAA |
| Notes: attental to contact John Monton OSC about the West Bank aberta - John was an another line | | TDD NO. 06-4652-68 |
| West Back abeta JA was an anth line | Subject Was Sank Usbestes | |
| West Back abeta JA was an anth line | | |
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| Conversation with: | Date 2 , 22 , 90 |
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| Name John Mater -OSC | Time 1643 AM/PM |
| Company EPA Region 6 | |
| Address 1445 Ross avenue | TATName Zroz M. Nagun |
| Dollas, TX . 75202 | |
| Phone (214) 655 - 2275 | TAN NO TLA 03765AA |
| Subject West Bank aslestes | |
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| Notes: EPA will help but TAT | |
| the grapest TAT will help | setup of lab if |
| Bota is useful to EPA. John | that TAT DOL 320. |
| state offer has and TAT got | etajit |
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| Conversation with: | Dale 2 / 23 / 90 |
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| Name 2082 Lloleans | Time/05]AM/PM |
| Company LOEQ - Anastre 2 abandonal ste | |
| Address G.O. Box 44066 - Copetal Station | TAT Name Zroy M. Nagun |
| Roton Rouge, CA 70804 | , III II III II II II II II II II II II |
| Phone 342-8925 | PAN NO. TLA 03755AA |
| Subject West Bank asbests | |
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| Notes: TAT Maquin contact 700 | tholosur of LDE a about |
| alia shotas of the West Rail | area. Toold was unable |
| to make contact due to anothe | project out of town. TAT |
| was also to get a contact of | on Told about the alial |
| aluta DOTO | |
| Willie E Brie | (|
| Br. 110 | |
| Phas # 379-11 | 13 \ |
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| Conversation with: | Dale 2 / 23 / 90 |
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| Name Stan Scalaoush | Time 13.48 AM/PM |
| Company LOEQ - air quality | w |
| Address 11720 auline dighway | TAT Name Zroz M. Nagun |
| Daton Rouge; LA 70817 | |
| Phone (SO4) 29 5 - 8900 | PAN NO TLA 03755AA |
| Subject West Bank asbests | |
| | |
| Notes: Stare of LOED collect t | get the bid for laboratory |
| andysis from TAT wanted) | to Jenow scope of service, TAT |
| Namin explain to stee | that the manfold anguenat |
| discussed colin at the | that the manifold anargement setting will not work. Therefore, |
| Co genge will be used. | 3 . , |
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| CC: | Pallan Ma Aallan |
| | Follow-Up-Action: |
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| Conversation with: | Date 2 / 23 / 80 |
|-----------------------------------------------------------------------------|-----------------------------|
| Name Chais quin | Time 514 05 AM/PM |
| Company Ede - Dalles | |
| Address 1509 Main St | TATNeme Troy M. Naguin |
| Dalla TX 75201 | |
| Phone (214) 742-6601 | PAN NO. TLA 03765AA |
| Subject West Bank asbests | |
| | |
| Notes: TAT Rapuis called AT | ATL quein about pumps |
| available, le suras are | presently available a quina |
| Notes: TAT Raguin Glad AT available, Ge pumps are mile he flying down to as | toward. |
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| Conversation with: | Date 2 / 23 / 90 |
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| Name Stare Scalnows | time |
| Company LDEQ - air quality | * ** |
| Address 11720 anline Highway | TATNAME Log M. Nagun |
| Batan Praye; LA 70817 | |
| Phone (504) 295 - 8900 | TAN NO. TLA 03755AA |
| Subject West Bank asbestes | |
| | |
| Notes: TAT Manin called Sto | se to inform him that |
| Notes: TAT Maguin colord Sta Loguezo mas available a 4. | more will be coming in. |
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ecology and enstronment

| Name Chair June Company Ede Odla Address 1509 Man St Dallos, TX 55201 PAN NO. TLA \$265AA TODNO. QL-9002-08 Subject West Bank asbests Notes: Chin called to ufor Tot Naguri that lo Jungs and 5 generator as available. Chin will alia to Jungs a 3 generator talay. He will call lite for his travel glans. | Conversation with: | Date 2 / 26 / 90 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| Address 1509 main St. TATNAME Zrog M. Naguin Dallos, TK. 75201 PAN NO. TLA 03755AA Phone (214) 742-6601 PAN NO. Ob-9002-0B Subject West Bank Orberts Notes: Chris class to ufor TAT Roque that lo grags and 5 seconton are available. Chris will ship to grangs of 3 generator tology. He will call lite for his travel plans. | Name Chair Quina | |
| Phone (214) 742-6601 Phone (214) 742-6601 Subject West Bank Orlests Notes: Chin along to inform Tot Roquer that logungs and 5 generator are available. And will all enter for his travel plans. | Company Ed & Dalla | e |
| Phone (214) 742-6601 Phone (214) 742-6601 Subject West Bank Orlests Notes: Chin along to inform Tot Roquer that logungs and 5 generator are available. And will all enter for his travel plans. | Address 1509 main st | TATNAME Tros M. Naguin |
| Phone (214) 142-6601 Subject West Bank asbests Notes: Chin collect to upon Tot Require that logues and 5 generators are available. Chin will ship to him travel plans. | | |
| Subject West Bank askerting Notes: Chin colors to upon TAT Require that logings and 5 generator are available. Ching will ship to gungs a 3 generator tolory. He will call lite for his travel plans. | | PAN NO. TLA 03755AA |
| Notes: Chin colors to upon TAT Mague that lo gengs and 5 generators are available. And will shop to gungs a 3 generators tolory. He will call late for his travel glans. | 그 그 그리지 아이는 그리지 아이는 아이를 하게 되는 것이 없는 것이 없습니 없는 것이 없습니 없는 것이 없습니 없습니 없습니 없습니 없습니 없습니 없습니 없습니 없습니 없었다면 없었다면 없었다면 없었다면 없었다면 없었다면 없었다면 없었다면 | TOUNG. |
| lo gungs and 5 generators are available. Chur well ships to gungs of 3 generators toland. He will call later for his travel plans. | Subject 10000 | |
| lo gungs and 5 generators are available. Chur well ships to gungs of 3 generators toland. He will call later for his travel plans. | Notes: Chair along to when | - TAT Rayer That |
| ships (6 gungs & 3 generators tology, do mill call lite for his travel glans. | la que a la Sana de | Charles Charles |
| lite for his travel glans. | and 3 states | to the available of the top |
| | sty 6 fungs of 3 gentra | for today, he will call |
| CC: Follow-Up-Action: | the for his travel plan | <u>~·</u> |
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| Conversation with: | Dale 2 / 26 / 90 |
|-----------------------------|-------------------------|
| Name John Martin - OSC | TimeAM/PM |
| Company EPA Region 6 | |
| Address 1445 Pros Change | TAT Name Zroy M. Nagun |
| Dallas, TX: 75202 | |
| Phone (214) 655 - 2275 | PAN NO. TLA 03755AA |
| Subject West Bank aslestes | |
| | |
| Notes: TAT Maguni attempted | to cotal John materiose |
| Notes: TAT Maguni attempted | his time be may be out |
| of town | |
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| Conversation with: | Date 21 26 1 90 |
|---------------------------------------|----------------------------|
| Name Patrick O' Niel | Time/050AM/PM |
| Company OOTO | * |
| Address 1201 Copital access Ol | TAT Name Zraz M. Nagun |
| Baton Rouge, LA 70804 | |
| Phone (504) 379-1131 . | TAN NO. TLA 03755AA |
| Subject West Bank aslestes | |
| | |
| Notes: TAT attempted to cont | |
| unavailable, loveren TAT a | sohe to Patrick O'riel who |
| in change of records for as | nial platos m. O'niel mie |
| research as see if history | photo from 1855-65' are |
| avaible gen TAT request. | Mr. o'riel will call back. |
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ecology and environment

| Conversation with: | Date 2 / 26 / 90 |
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| Name Eric Jeansonne | Time11_03AM/PM |
| Company DOTO | |
| Address 1201 Coptol acces Rl | TATNAME Troy M. Nagun |
| Boton Rouge: LA 70804 | |
| Phone (504)379-1131 | PAN NO. TLA 03755AA |
| Subject West Bank asbests | |
| | |
| Notes: Eve Jeansonne of DOTO | called to inform TAT that |
| ghotos before 1962 were not a | |
| general area is available. | . 0 |
| | ind plata) available m. pansome |
| to contact mrs. S | andy RM 115 at the NOTO Bly |
| to get photos. M. Jemson | |
| acriel photos of the area | in question could be found |
| for the agriculture Dept in | the 8000 a Rely on from |
| the Seo- scince library at | 450 |
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ecology and environment

| Conversation with: | Date 2 126 190 |
|------------------------------|-----------------------------------------|
| Name Stare Scarbrough | Time |
| Company LOEQ - air quality | M2 |
| Address 11720 andine Mighing | TAT Name Los M. Naguin |
| Baton Prouge, LA | 1 EST 121 |
| Phone (504) 295 - 8900 | PAN NO. TLA 03765AA |
| Subject West Bank asbestes | 100110. |
| Subject 1222 | |
| Notes: Stare was unwalded. | 20 |
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| Conversation with: | Dale 2,28,90 |
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| Name John Martin asc / Reagan Boyles | time/655AM/PM |
| Company EPA Region 6 | |
| Address 1445 Ross arems | TATNAME Zroz M. Nagun |
| Dalla, TX. 75202 | _ 1 |
| Phone (214) 655 - 2275 | PAN NO. TLA 03765AA |
| Subject West Bank aspects | |
| | |
| Notes: TATS Zoon Namin, St | are Oreise O.R. ATATL, Chris quina |
| Dallas ATATL, and Mark Enell | morned EPA OSC John Martin |
| of the current situation with the | |
| roquin informed the ose of the | 그 아이들은 아이들은 아이들은 아이들은 아이들은 아이들은 아이들은 아이들은 |
| LOED personnel for the selecti | |
| air sangling de allton, EPF | |
| national found at the Sa Pale | a dunp site. air sanding |
| | a with Ede agrupment purhous |
| by Chris quina for TAT use | |
| informal that the QUASD we | |
| the laboratory support will. | ### ################################# |
| requested TAT to also pull | E help sample to be |
| submitted for andrain. | A. Control of the con |
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| Maria de la companya della companya | Follow-Up-Action: |
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| Conversation with: | Date 03 1 01 1 90 |
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| Nome John Martin OSC | Time 14/5AM/PM |
| Company EPA Regin C | |
| Address 1445 Ross anome | TAT Name Zroz M. Nagun |
| Oallas, TX: 75202 | |
| Phone (214) 655-2275 | PAN NO. TLA 03765AA |
| Subject West Bank asbests | |
| | |
| Notes: TAI called to inform | the osc that the OVASO |
| | 9673. OSC Serided to gull |
| 8 fulls sangles instead of 5 le | stal requested yesterday. Orc |
| tasked TAT to set QUA. | SP by Sel Expormondey 4 |
| march 1990. In alliting, | the osc will be flying in |
| on Tuesday might genden | g on the weather. |
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| Conversation with: | Date 3 / 5 / 90 |
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| Name John Martini-OSC | Time 0814 AM/PM |
| Company EPA Region 6 | ₽ |
| Address 1445 Ross avance | TAT Name Zroy M. Naguin |
| Dallas, TX. 75202. | |
| Phone (214) 655- 2275 | TAN NO. TLA 63765AA |
| Subject West Bank askertes | |
| | |
| Notes: TAT informed EPA OSC | John morter about acrial |
| photos - found on for 1976 | , DOTO doesn't have any |
| guis to '76. TAT will go | |
| to get phitos, if available | . Only 6 surpo mill be |
| available : 1 station / loca | |
| John made will fly in A. | uesday afternoon, BOLREPS |
| will begin onday | |
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| Conversation with: | Date 3 105 190 |
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| Name Bob Hannah | 11me /300AM/PM |
| Company LDEQ - an quality | |
| Address 11720 airline Highway | TAT Name Zroy M. Naguin |
| Octon Rouge; LA 70817 | |
| Phone (504) 295 - 8900 | PAN NO. TLA 03765AA |
| Subject West Bank askestes | |
| | |
| Notes: TAT colled to inform | Rob Hannoh & LOEG ain |
| | will be songling welnesday |
| Trank 1990. air sample | |
| land a laine bull will | The in level C. In addition. |
| Hannah we iformed the | |
| to track all potential | |
| and rowh their degree of | |
| TAT that it would fall | |
| | Il cotact Dus von Bodungen |
| les les judnes est track | |
| asser the range and sale | The fall |
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| Conversation with: | Dale_3 /_5 / 90 |
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| Norma John Monthi - OSC | Time1505AM/PM |
| Company EPA Region 6 | |
| Address 1445 Ross anome | tat Name Zraz M. Nagun |
| Oollas, TX: 75202 | |
| Phone (214) 655-2275 | TAN NO. TLA 03765AA |
| Subject West Bank asbests | |
| | |
| Notes: John Matin OSC call | led to inform TAT that |
| | about TAT being in Level |
| | sangling. ToT informed ouc |
| that TAT could be in | Sand O for an sampling, but |
| | of bulk. Theefore, the osc |
| | Bull and state was wondering. |
| when we when it soughing | y now . O.SC explained that |
| the sampling slam lab su | goot, and equipment suggest. |
| would take a lew day. | TAT & EPA would be really |
| to so Welnesday OSC dec | Ded to go Welnesday. |
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| Conversation with: | Date 3 / 6 / 90 |
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| None John Martin - OSC | Time 0814 AM/PM |
| Company EPA Region 6 | The second control of |
| Address 1445 Ross avenue | TAT Name Zray M. Naguin |
| Dallas, TX 75202 | · · · · · · · · · · · · · · · · · · · |
| Phone (214) 655 - 2275 | TLA 83765AA |
| Subject West Bank aslester | |
| | • |
| Notes: John Martin OSC Cal | lled to inform TAT that |
| if it rains tonight a t | omorrow morning to souls |
| the air sampling mission | TAT is to contact state |
| il orisain is samped, to | In matin will fly in |
| belieslay morning, weath | e permitting |
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ecology and environment

| Conversation with: | Date 3 / 6 / 90 |
|----------------------------------------------------------------------------------------------------------------------|-------------------------|
| Nome LOEQ Secretary | Time 1050 AM/PM |
| Address P.O. Box 44066 - Capital Station | TAT Name Zray M. Naguin |
| Phone (214) 655-2270 Subject West Bank askestes | TAN NO. TLA 03765AA |
| Notes: TAT attempted to contact of request to for the state to extent of contamination from met in, TAT left message | Frank the site and the |
| not in, TAT left message | |
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erology and endronment

| Conversation with: | Date 3 106 190 |
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| Nome Stave Scalound | Time 14 45 AM/PM |
| Company LAEQ - air quality | |
| Address 11720 Quilina Digling | TATNOMO Zroy M. Naguin |
| Boton Rouge, LA 70817 | PAN NO TI A 0375 SAA |
| Phone (504) 295 - 8900 | TAN NO. TLA 03755AA |
| Subject West Bank aslestes | |
| | |
| Notes: TAT called to uform t | |
| mission will be schooled for | tomorow 7 march 1990 |
| pending weather conditions, | LDEQ well meet TAT |
| 5700 tomorrow in front of | the EDE office bldg |
| and depot for the West Bo | and of New Orlean |
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ecology and endronment

| Conversation with: Name John Martin - OSC Company EPA Region 6 Address 1445 Ross anema Dallas, TX 75202 Phone (214) 655-2275 Subject West Bank aslestes | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Notes: TAT called golm mata was away from his deal. T | AT left mercoge to return |
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| CC: | Follow-Up-Action: |

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ecology and enthumment

| Conversation with: | Date 3 1 6 1 90 |
|-------------------------------|-------------------------------|
| Nome John Martin OSC | 11me/ 630AM/FM |
| Company EPA Region 6 | - |
| Address 1445 Ross avenue | . TAT Name Zroz M. Dagun |
| Dalla, TX 75202 | |
| Phone (214) 655-2275 | TAN NO. TLA 6576 SAA |
| Subject West Bank ashestes | |
| | |
| Notes: John Monter OSC called | to inform TAT that he will |
| contact TAT Regum at ho | me around 0600 tomorrow |
| march 7 1980 for weather | conditions of it is raining |
| OSC will not travel to | New Onleans and TAT will |
| not conduct air sandling | mision, OSC also regulated |
| TAT to take out informat | Ton about bull sangles on the |
| OAS Pone that the wife | on the CRIP to air sondings |
| was O.K. | |
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| Conversation with: | Date 4 , 17 , 90 |
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| Name Mike McDaniel, PhD | Time 1000 AM/PM |
| Company LDEQ AIR DW. | |
| Address Butor Rouge, La | TAT Name_RSPara |
| Phone | PAN NO. TLA Ø375 SAA TDD NO. 06- 9002-08 |
| Subject Westbank ashestos | |
| Notes: Spoke to mike about weather | |
| Lannah I told him all air a | gle results due to loss of Boh |
| we could grovede assistance or | amples were regular and strain |
| Let Colla moved appliance | Through the see to op the |
| lack when a when we could | get logether w/LDEQ to review |
| data. | ga soguer suj zoch zo meren |
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| CC: 7 1/ 511- | - 1/ / / / |
| CC: Troy Nagvin - FYF | Follow-Up-Action: When we hear back |
| | from mike, call OSC Martin |
| | To undate ? for direction. |
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ecology and environment

| Conversation with: | Date 06 / 11 / 90 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Name John Martin | Time 4:/7 AMAPM) |
| Company EPA Blegion 6 (OSC) | |
| Address 1445 Ross Overul | TATName Logn. Nagun |
| Oallas, TX 75202 | |
| Phone (215) 655-2275 | PAN NO. TLA \$3755AA TDD NO. 06- 9002-08 |
| Subject Westbank ashestos Proge | <u></u> |
| Notes: John Martin: (OSC Regulated bulk and agressive conducted in July a augus Parial asbestor arte. John | an sampling will be at 1910 of the Jefferson Re martin will contact |
| future work stones. | 1 THIS DEVINE |
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TROY M. NACUN
Print Originator's Name
Ecology and Environment, Inc.

| Conversation with: | Date 06 / 28 / 90 (No) (Day) (Year) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Name John Martin OSC | Time /334 AM/PM |
| Address 1445 Rosa avenue | Originator Placed Call |
| Oallas, TX 75202 | [] Originator Received Call |
| Phone 214 - 655 - 2275 | |
| (Area Code) (Number) | TDD# 06-9002-08 PAN# TLA0375SAA |
| Subject WESTBANK ASBESTOS PROJECT | |
| ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | |
| Mortin regarding the ame asbestes dechnical Orienter approved amending the TOK till the end of the TAT of requested the GASP for the be returned for revision. OSC martin informed | on Document (TDO). OSC Martin of for time of completion ontract. In addition, TAT westbank asbestos Project |
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| Pollow-Up-Action: | |
| Originator' (RWG 6/90) | s Signature: Zwogn. Nagum |

TROY M. NACUN
Print Originator's Name
Ecology and Environment, Inc.

| Conversation with: | Date 09 / /0 / 90 |
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| Name John martin - OSC | Time 10:15 (May) (Year) |
| Address 1445 Ross avenue | Originator Placed Call |
| Dalla, 7x 75202 | Originator Received Call |
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| Phone 214 - 655-2275 | |
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| Name John Martin OSC Region (Address 1445 Ross arenne Dallos, TK 75202 Phone 214 - 655 - 2275 (Area Code) (Number) Subject Westbank asbesto | Date 10 / 25 / 96 (Mo) (Day) (Year) Time 0930 AM/PM [] Originator Placed Call [] Originator Received Call TDD# EOG-9010-054 PAN# FLA Ø375 SAA |
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| Discussion: OSC martin is tent the site around 19 Novemb a nick assessment and poss | |
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| like TAT to close out | the TOD and produce the |
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| Conversation with: | $\frac{\text{Date} \circ 9}{\text{(Mo)}} / \frac{\circ 9}{\text{(Day)}} / \frac{9}{\text{Year}}$ |
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| Name Kenneth Somie R.S. (DHH) | Time_/330AM/PM |
| Address 0.0.0 4 60630 | [Originator Placed Call |
| New Orleans, LA 70160 | [] Originator Received Call |
| Phone 504 - 568 - 8536 | |
| (Area Code) (Number) | TDD#106-9010-54C PAN# ELAO3755AA |
| Subject Westbook asbestos Progei | |
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| Discussion: TAT called Kenneth San | in at the Dest of Health |
| and Hospitals - Mr. Some not | |
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| the asbestosis invest | iestrai in the Money area. |
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| and notify TAT la | ter in any thing has been |
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| (RWG 6/90) | 3. |

ATTACHMENT G Copy of Logbook (Pages 1 - 45)





Job Number TS 1313; TLA 0375 SAA

TDD# 06-9002-08/TO6-9010-54
West Bank Asbestos
West Bank Area, Jefferson Porish, Louisiana

Telephone Code Number

Site Name West Bank Askestos

State/City Louisiana, West Bank, Jeffesson Pacish

TDD Ø6-9ØØZ-Ø8/06-9010-54

PAN TLAOSSTON TLAØ375 SAA/FLA0275SAA

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Start/Finish Date 2-3-9Ø / 10-22-90

Book 1 of 1

E & E Emergency Response Center: (716) 684-8940

Backmound Surriam official and TAT on 8, Velousy 1980 Troy m. Napuri

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manuale plant la area suspected of aspector contains

Work (504) 838 - 5361, 2000 (504) 338-2133. though Bridge City and looked of estal Acm diverge out And w Water

2-23-90 TOO# 66-9012-08 TOD# 06-9007-08 - TAT can offer suggest for our - State & TAT congrests in songle somple in the future - State a TAT will meet at 7:30 well the 28th to begin 1025 meeting adjourned, - Inacting a abouloued of the Dumin of DED tome. - it was decided that Welnesday the 28th of Defruery 1990 that TAT FOED was 0730 and travel to new Orleans for secon of to Baton Bouge songling locations a return Our trans - State tooked TAT to get the 25 mm cassetter anth the . 8 mm migal callulance enter as stated NIOSH 7400 - Thursday the separation of march mill be the first my M. Nagum ale state com it - only Star Scarbrugh of DEO has

2-28-90 TOD# \$6-9\$\$2-\$6 2-28-90 TOD# \$6-9897-88 contacted Adm Sharp of CDEO 0700 TAT'S TROY NADVEN & Mark Eyell arrive at mitte GPA Vehile # 706. SE Region in Now Onlean by mobile afor John that TAT and LO = a personal replaced Ray Venell wild be arriving in the content in 40 minutes no site sefety office 2 7 cm meet at the store at the foot of of 23, Sebruary 1990. Verrall the they P. Song Bridge. 0910 TAT + LDEQ anne in No Onle with John Shap who gove TAT a last of the locations to be sould Sugar #5 Dagle #6 to Baton Pouge of a air sampling Langela # tel to Dalle ATATI to delay any gullons that Dample # 8 0725 TATO Nagur & Eyell logant EdE office 0915 TAT & LOEO personal depart for 110 ate sto for the LDEO Copietal Dogument office 0728 TATS Maguin & Banel To Eyell annie TAT Mak Exell conduct on ste action, nesting and in attendance are Joh slop, Bob Hannel, and store LOEA. The weather today Scarbough of LOED and THO mader Troy Regues chaly, temp ~ 55°F, mel & Wanthen - Party cloudy, ten 600F, and E-st at - 5 month 0745 TATS Raquin & Exell and LOE a - an quelity - glant monitor y calibrated land on 10/19/89 Division O ob Harrish deport WEG Capital would for detection of any radiation hazards Rayonal Office in CIA Vehilo #706 for miningin associal mondo model PDM - 3 EPA 7 69 6 464 sand # 4712 mill be used to the West Bank area, Jefferson monte asberta dust / gentiles drog r. naprin

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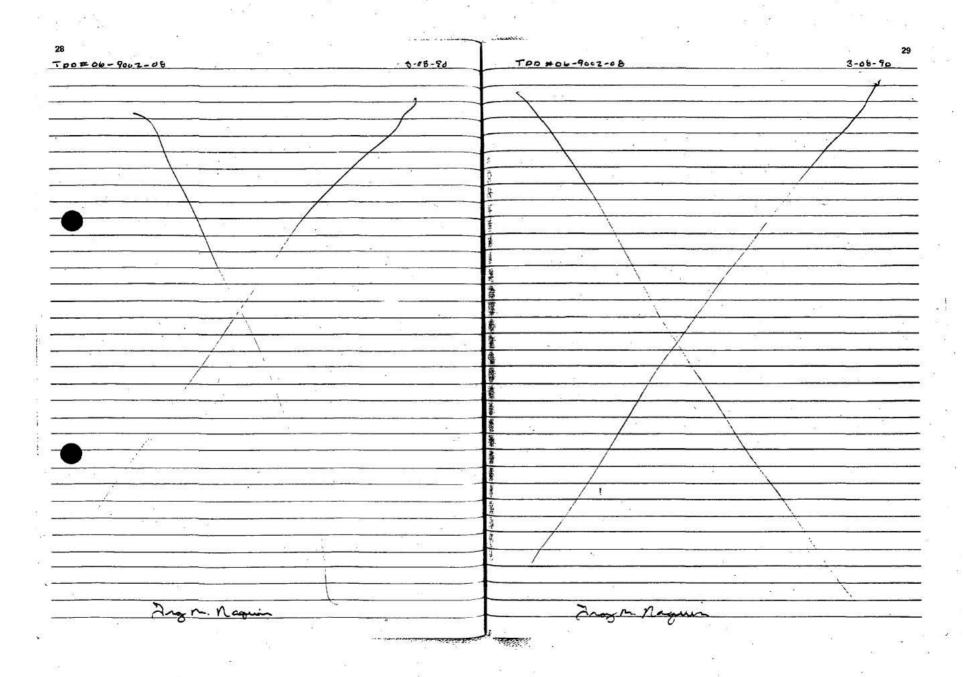
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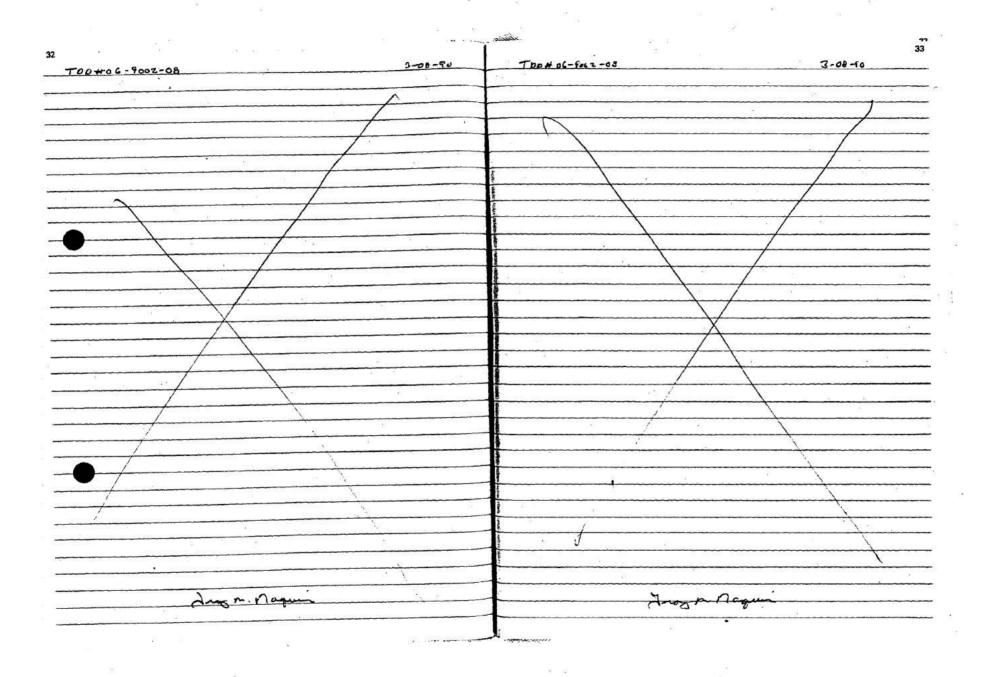
TOD# 06-9002-08 much with TAT against. The following TOT'S Raguin & Exell and DEQ Scanborned or Henry - TAT would meet with LDEQ Ster Scanbrowd tomorou at 0900 to confunt mu confunt : belong al the motored someth 3 500 Cheme B - Marrow Lin 1500 TATE Roquin and Enell arrived at Coc office-Baton ethe of the interests. TATE Long Naguer and Mark Egell meet enets. TAT agreed and the - TAT & LDEQuinduling John Sharp in New O stran would be selected for an sangling - TAT 24 DE Q also conducted uniquetion of the two landful untaining ashestor motor

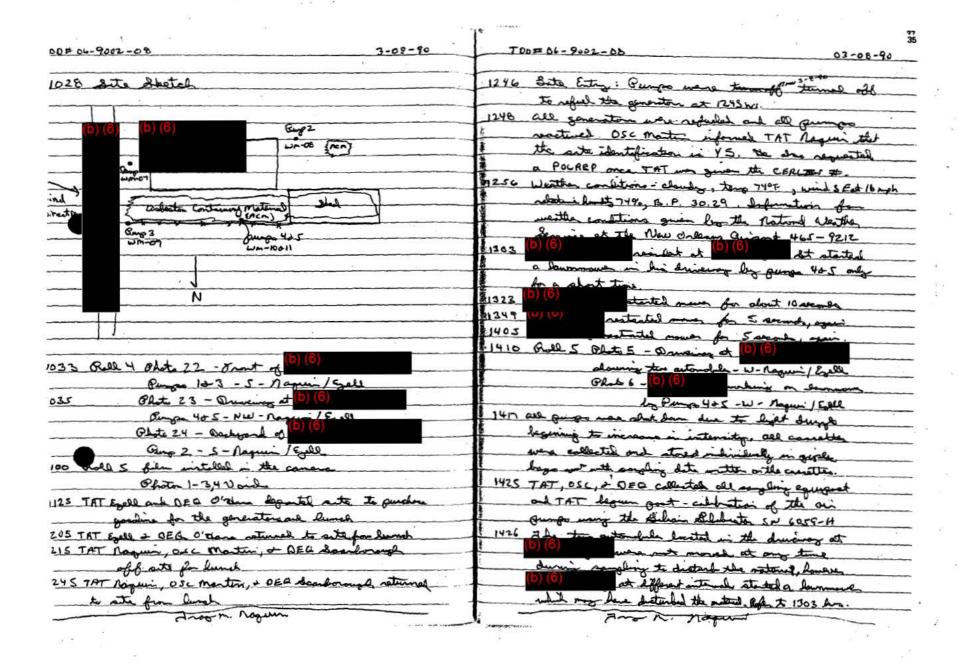
3-07-90

From Magun

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63-09-90

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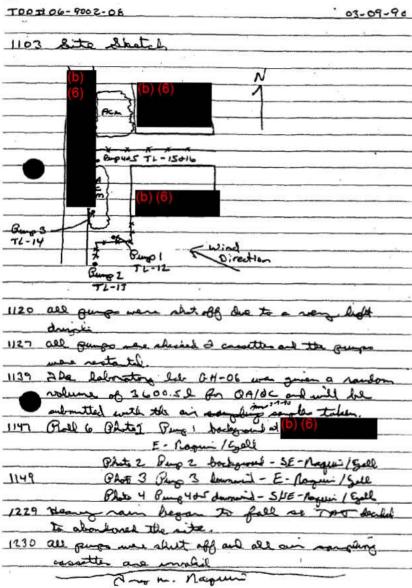
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Top # 06-9002-08 1236 TAT: Noguna Expl and LOED Scanborough Sports postponed tell jette weather contitude gament. Our sampling crossettes placed in the orand box in 1405 TATE armied at EXE office in Boton Bouge 1425 TAT pague attempted to contact Jul month, be me not available, will return 1445 TATI Regum: 2 Ende Separtie to Ed E warefrom 1550 OSC John Martin contacted THO Romin malite place it washing and regulated TAT to bring samples collected the for 1600 TATE return to Ede office. Total field her today Nagun o gell - hom. Summany of Events on 3-09-90 6) TAT dometer dometer at 12:30 due to name emilia due to not angual sampling time required to satisfy EPA FRT SOP. (TAT sealed all consetter with control 6) TAT returned I B Jon Rouge and is air someling equipment. TOT will summit soughles Monday for analysis per ac sequent Drag a. nague

TD0#06-9002-08 replaces the old TDD (TDD TOG-9002-08) unla the contract (# 66-01-7368).

ATTACHMENT H
Polrep #1

I. HEADING

Date: 3/14/90

From: OSC John Martin

To: Director, ERD, and Region 6

Subject: West Bank Asbestos, Marrero, Jefferson Parish, LA

POLREP: 1

II. BACKGROUND

Site No. Y5
Response Authority: CERCLA
NPL Status: non-NPL

III. INCIDENT INFORMATION

A. Situation

The Johns-Manville Plant in Marrero, Louisiana produced various asbestos containing building materials on the West Bank of the Mississippi River. A by-product of the manufacturing process was an asbestos containing material (ACM) in aggregate form. ACM was utilized by the local residents for driveway construction in nearby neighborhoods; the ACM was reportedly free to the public. In 1989, the aggregate was bulk sampled by the Louisiana Department of Environmental Quality (LDEQ) and was found to contain 40 to 50% asbestos. TAT and LDEQ conducted initial reconnaissance of the area around the inactive Johns-Manville Plant. ACM was found to be present in the cities of Marrero, Westwego and Harvey, in Jefferson Parish, LA. The extent and distribution of the ACM are undetermined.

B. Actions Taken

On 7-9 March 1990, TAT, OSC John Martin and representatives of LDEQ conducted sampling for airborne asbestos fibers at three preselected areas. TAT followed the EPA Emergency Response Team (ERT) Standard Operating Procedures for outdoor ambient air sampling for asbestos. Sampling was completed at two of the three locations; however, sampling at the third location was suspended due to inclement weather conditions. Samples were submitted for laboratory analysis and TAT is currently awaiting results.

C. Future Plans

TAT plans to repeat air sampling at the third location, and await analytical results to determine futher investigation.

TAT Representative Troy M. Naquin Status of Case: Case Pending

ATTACHMENT I Project Meeting Attendence Sheet

A Honder 5 ECOLOGY & ENVIRONMENT, INC. RAY E FERRELL Grown Nague Ecology & Envisorment, INC. Chris Roberie DEQ/AIV/Enforcement Todd Throdex DEQ/IAS Lendamei DHH-OPH DEQ Legal & Enforcent DEQ Air Gisting + Niches Engy, DEQ AIRQUALITY Terripleyeer o Mike M Daniel GUS VON BODUNGEN Steve Prince Ecology & Environment, Inc. (Technical Assistance JOHN MARTIN EPA-OSC

ATTACHMENT J Sampling QA/QC Plan (60 Pages) SAMPLING OA/OC PLAN

Westbank Asbestos Site

Jefferson Parish, Louisiana



Prepared by Ecology and Environment, Inc. Technical Assistance Team - Region 6

EPA Project No.: FY90-1364 Contractor Work Order.: T06-9002-2708 EPA Contract No.: 68-01-7368

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E & E Baton Rouge

APPROVALS

Ecology and Environment, Inc.

EPA

Troy Naquin

Project Manager

On-Scene Coordinator

R. Steve Pierce ATATL

Date

1.0 BACKGROUND

The Westbank Asbestos Site is located on the west bank of the Mississippi River in Jefferson Parish, Louisiana (Figure 1). The suspected areas of contamination include the cities of Westwego, Marrero, Harvey, and Gretna. During the 1950's and 1960's, a Johns-Mansville Plant was in operation near Marrero, LA. The plant produced various asbestos containing products. An aggregate by-product left over from the plant operations was dumped on plant property. Local residents found that this material was an excellent material for constructing driveways. The Johns-Manville Plant distributed the asbestos containing material free to the public. In some cases, concrete was added to the aggregate to provide additional structural support.

On 12 January 1990, The Louisiana Department of Environmental Quality (LDEQ) performed sampling of the Westbank area. Ten bulk samples were collected of suspected asbestos containing material in Marrero and Westwego. The samples were analyzed using stereomicroscopy and polarized light microscopy. Results indicated estimated ranges of 25-60 % total asbestos, 8-35 % Chrysotile, and 10-35 % Crocidolite.

2.0 OBJECTIVES

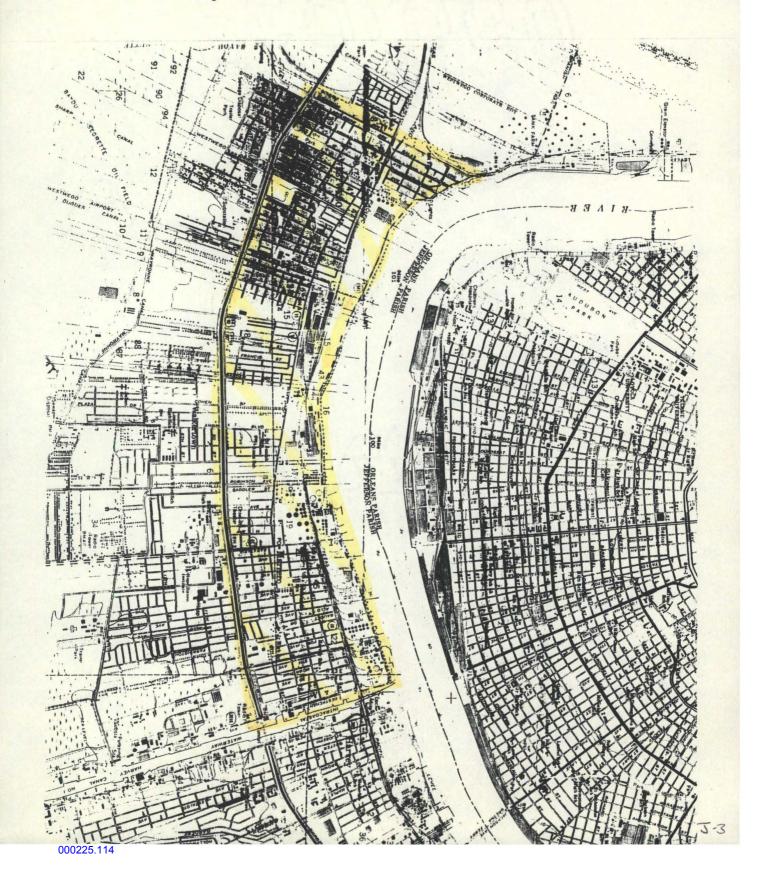
The objective of this project is to perform air and bulk sampling to determine the magnitude and extent of airborne asbestos contamination at the site. High flow air samplers will be utilized for sample collection, followed by laboratory analysis to establish levels of contamination.

Site samples will be taken and analyzed for the purpose of:

Site characterization Risk assessment Removal potential

The data will be evaluated against current federal NAAQS standards and OSHA permissible exposure limits.

Figure 1: SUSPECTED AREAS OF CONTAMINATION



3.0 QUALITY ASSURANCE OBJECTIVES

As stated above, air sampling is the anticipated action to be performed during this project. Quality Assurance objectives for given parameters are as follows:

| PARAMETERS | MATRIX | INTENDED USE OF DATA | OA OBJECTIVE |
|-------------------------------------------|------------------------|--------------------------------------|--------------|
| Mini-Ram Particulates | air | field screening | QAl |
| High-flow Air Asbestos Particulates | Samplers air air | characterization characterization | QA2 QA2 |

Methods to be employed during this event include:

NIOSH method 7400 Phase Contrast Microscopy EPA method Transmission Electron Microscopy

For QA2 (EPA method), results will be asbestos specific; preliminary screening (method 7400) will include qualitative fiber counts of all airborne particulates. Results will be representative, comparable and complete. Quality Assurance requirements for objective QA2 are specified in section 6.0.

4.0 APPROACH AND SAMPLING METHODOLOGIES

4.1 Media/Matrix

This event involves the assessment of the following media:

Air (Breathing zone)

4.2 Sampling Equipment

The following equipment will be utilized to obtain samples from the respective media/matrix:

| <u>Media</u> | Sampling <u>Equipment</u> | Specifications Dec | dicated |
|--------------|-----------------------------------------------------------|--------------------|-----------|
| air air | High-flow air sampler mixed cellulose filte (PCM and TEM) | | no yes |
| air | extension cowl | 50 mm | yes |
| air | Real-Time Aerosol Monitor (mini-RAM) | RAM-1 | no |

4.2.1 Sampling Equipment Decontamination

Decontamination of the pumps will be accomplished using the following sequence:

deionized/distilled water wipe/rinse air dry

4.3 Sampling Design

8 bulk samples will be taken at 8 of the 10 locations previously sampled by LDEQ. Sample locations will be shown on a map and table to be attached later.

The high flow air samplers will be placed in the following locations:



(The locations are depicted on Figure 2.)

Sampling design and methodology will meet EPA ERT SOP criteria.

5-6 high flow air sampling pumps will set up at each location. The pumps will be run for approximately 4 hours, at 15 liters/minute, for a total volume collected of 3600 liters of air. These locations will enable an upwind or downwind sample to be obtained regardless of wind direction, and to evaluate the potential maximum airborne exposure to local residents. If all the siting criteria cannot be met, the reasons for not meeting the criteria will be documented in the logbook.

Periodic monitoring of total particulates will be conducted during this activity using a mini-RAM. Meteorological data, including ambient temperature, barometric pressure, relative humidity, wind speed and direction will be acquired from the National Weather Service at the New Orleans International Airport and the information recorded for operations during the entire sampling period.

Figure 2: Air Sampling Locations



4.4 Standard Operating Procedures

4.4.1 Sample Documentation

All sample documents must be completed legibly in ink. Any corrections or revisions must be made by lining through the incorrect entry and by initialing the error.

1. Field Logbook

The Field Logbook is essentially a descriptive notebook detailing site activities and observations so that an accurate account of field procedures can be reconstructed in the writer's absence. All entries should be dated and signed by the individuals making the entries, and should include (at a minimum) the following:

- 1. Site Name and project number.
- 2. Proposed work and objectives of mission.
- 3. Name(s) of on-site personnel and responsibilities.
- 4. Additional subcontractor information and names of on-site personnel.
- 5. Dates and times of all entries (military time preferred).
- Descriptions of all site activities, including entry and exit times.
- 7. Noteworthy events and discussions.
- 8. Weather conditions.
- 9. Site observations.
- Identification and description of samples, matrices and locations.
- 11. Date and time of samples collections, along with chain-of-custody and shipping information.
- 12. Record of Photographs.
- 13. Site sketches.
- 14. Site safety information, including site safety meetings and levels of protection.
- 15. Equipment inventory and calibrations.
- 16. Record of important telephone conversations

2. Sample Tags

Sample tags must clearly identify the particular sample, and should include the following:

- 1. Site name and number
- 2. Date and time sample was taken
- 3. Sample preservation
- Initial of sampler(s)
- 5. Analysis requested
- 6. Sample location

Sample tags must be securely affixed with string to the sample container.

3. Chain-of-Custody Record

A Chain-of-Custody record must be maintained from the time the sample is taken until its final disposition. Every transfer of custody must be noted and signed for and a copy of this record kept by each individual who has signed. When samples (or groups of samples) are not under direct control of the individual responsible for them, they must be stored in a locked container sealed with a Chain-of-Custody seal.

The Chain-of-Custody record should include (at minimum) the following:

- 1. Sample identification number
- 2. Sample information
- 3. Sample location
- 4. Sample date
- Name(s) and signature(s) of sampler(s)
- Signature(s) of any individual(s) with control over samples
- 7. Airbill and shipping paper numbers

4. Chain-of-Custody Seals

Chain-of-Custody Seals demonstrate that a sample container has not been tampered with or opened.

The individual in possession of the sample(s) must sign and date the seal, affixing it in such a manner that the container cannot be opened without breaking the seal. The name of this individual, along with a description of the sample packaging, must be noted in the Field Logbook.

5. Corrective Action

Corrective actions are those taken in response to nonconformance reports, audit findings, or surveillance findings. The quality assurance representative is responsible for reviewing audit reports and nonconformance reports to determine the significant or repetitious conditions adverse to quality, or failure to implement or adhere to required quality assurance practices. When such problems are defined, the responsible manager must investigate the causes of the problems and define and implement the necessary actions to correct the problems. Documentation that supports major corrective actions must be maintained in the project files.

4.4.2 Sampling

Asbestos Sampling

(See Attachment 2 -EPA ERT Asbestos Sampling SOP)

4.4.3 Sample Handling and Shipment

At the conclusion of the sample period, the cowl unit including the filter will be removed, and placed in a wide mouth jar for sample shipement. Each of the jars' caps will be secured with custody scals. Bottle lables will contain all required information, including sample number, time and date of collection, and analysis requested. All jars will be placed in plastic coolers, and padded with bubble wrap.

All sample documents will be affixed to the underside of each cooler lid. The lid will be sealed and affixed on at least two sides with EPA custody seals so that any sign of tampering is easily visible.

4.4.4 Analysis

Asbestos Analysis

The laboratory will follow the NIOSH Method 7400 and EPA method. EPA ERT SOP #2015 Asbestos Sampling will be referenced (Appendix B). The use of field logbooks, by TAT, for site documentation will be consistent with E & E SOP-Field Activity Logbooks, GENTECH 4.1

4.5 Proposed Scedule of Activities

(See Table 1)

Table 1: Proposed Schedule of Activities

| Activity | Time Period |
|---------------------------|----------------|
| 1. Preparation | 2/6-2/7/90 |
| 2. Site Recon | 2/8/90+2/28/90 |
| 3. Saboratory Procurement | 2/26-312/90 |
| 4. Sampling air & Bulk | 3/7-9/90 |
| 5. Soboratory analysis | 3/12 - 3/16/90 |
| 6. Data Ravien | 3/19/90 |
| 7. Final Report | 7115/90 |
| 8. | · 9 |
| 9. | |

5.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The EPA On-Scene Coordinator, John Martin, is responsible for the coordination of resources to develop and implement the Sampling QA/QC Plan and will provide direction to Ecology and Environment, Inc. TAT concerning project objectives, sampling needs, and schedule.

The Ecology and Environment, Inc. Project Manager, Troy Naquin, is the primary point of contact for the EPA On-Scene Coordinator. The project manager is responsible for the development and completion of the Sampling QA/QC Plan, project team organization, and supervision of all project tasks, including reporting and deliverables. In addition, he is responsible for ensuring field adherence to the Sampling QA/QC Plan and recording any deviations.

The following field sampling personnel will work on this project:

Personnel

Responsibility

Troy Naquin Mark Ezell Project Manager SSO, Sampler

The Ecology and Environment, Inc. TAT Project Director, R. Steve Pierce, is responsible for providing administrative and technical guidance to the Project Manager and team, auditing field activities, reviewing the technical deliverables, and proposing corrective actions, as necessary.

The Ecology and Environment, Inc. Quality Assurance Officer (QAO), Sherri Hughes, and Regional Safety Officer (RSO) Maxine LaPierre, are responsible for auditing and guiding the project team, reviewing plans, and proposing corrective actions, if necessary, for nonconformity to the Sampling QA/QC plan or Site Safety Plan.

The following laboratory will be providing the following analyses:

Asbestos

Lab Name/Location Lab Type Parameters Method

West-Paine Commercial Laboratories 7979 G.S.R.I. Ave Baton Rouge, LA 70820 NIOSH 7400 and EPA (TEM)

6.0 QUALITY ASSURANCE REQUIREMENTS

The following requirements apply to the respective QA Objectives and parameters identified in Section 3.0.

The following QA protocols apply:

For QA1 data

- Instrumentation calibration and/or performance check of the given test methods will be documented on data sheets or in the field logbook.
- Sample documentation will be provided utilizing sample data sheets and the field logbook.

For QA2 data

- Adherence to proper sample documentation and chain-ofcustody procedures.
- Documentation of calibration of air samplers.
- Determination of detection limit by the selected laboratory.

Note: QC procedures prescribed in the Asbestos Sampling SOP and NIOSH Analytical Methods must be followed by TAT and laboratory selected for analysis of the air samples.

7.0 DELIVERABLES

All project deliverables will receive an internal peer QC review prior to release, as per guidelines established in the (EPA Regional/Branch or Contractor) Quality Assurance Program Plan.

The Ecology and Environment, Inc., Project Manager, Troy Naquin, will maintain contact with the EPA On-Scene Coordinator, John Martin, to keep him informed about the technical and financial progress of this project. This communication will commence with the issuance of the work assignment. Activities under this project will be reported in a final report, described herein. Activities will also be summarized in appropriate format, highlighting the numbers and types of samples taken, for their inclusion in monthly and annual reports.

Draft Final Report

A (draft) final report will be prepared, by the TAT to correlate available background information with data generated under this sampling event. Appropriate maps, figures, and attachments will supplement the written report.

Analytical Data Package (QA2)

The sampling event requires analytical services. Documentation of laboratory selection, raw data, and results will be provided in the report. A review of the data generated under this plan will be undertaken. The assessment of the data acceptability or usability will be provided as part of the analytical portion of the report.

8.0 DATA VALIDATION

Asbestos air sampling cannot be validated by the OSWER Directive 9360.4-01. The NIOSH Method 7400 and EPA Method contain their own Quality Control measures.

TDD No. 06-9002-2708

ATTACHMENT 1

LDEQ Analytical Results
(4 pages)





La. Dept. of Environmental Quality Office of Management & Finance Technical Services Div.

February 14, 1990

TO:

Dale Givens
Jim Hazlett
Mike McDaniel
Gus Von Bodungen
Chris Roberie
Earl Clayson
John Sharp
Bob Wasconick
Harold Ethridge
Todd Thibodeaux

Troy Naquin

FROM:

Debra E. Bendily

SUBJECT:

Results Report for Completed Sample Analysis

Samples received were analyzed using stereomicroscopy, poliarized light microscopy with dispersion staining as well as crossed, slightly crossed polars, and first order red plate to 200X. Standard procedures and knowns from McCrone Lab, DEQ Reference Slides and McCrone Particle Slides and Atlas were used for identification.

Individual bulk sample analysis of pulpy material under more cementitious top material were as follows:

| Sample # | 1 (90-01-016) | o) (6) | | # |
|----------|---------------|--------------|---------------|-------------------------------|
| Prep # | Total Asb. % | Chrysotile % | Crocidolite % | Remainder % * *(Non-fibrous + |
| | | 2 954 | | non-asbestos fibers) |
| A | ~50 | ~35 | ~15 | ~50 |
| В | ~50 | ~35 | ~15 | ~50 |
| С | ~55 | ~22 | ~33 | ~45 |
| D | ~ 25 | ~15 | ~10 | ~75 |

| Sample #2 | (90-01-013) - | (b) (b) | 184 1 | 25 # 42 48 |
|-------------------------|---------------|-----------------|---------------|------------------|
| Prep # | Total Asb. % | Chrysotile % | Crocidolite % | Remainder % * |
| A | ~60 | ~35 | ~25 | ~40 |
| В | ~55 | ~20 | ~35 | ~45 |
| С | ~50-55 | ~30 | ~20-25 | ~45-50 |
| D | ~45 | ~20 | ~25 | ~55 |
| Sample #3 | (90-01-012) - | (b) (6) | | 25 |
| Prep # | Total Asb. % | Chrysotile % | Crocidolite % | Remainder % * |
| A | ~26 | ~8 | ~20 | ~72 |
| В | ~35 | ~10 | ~25 | ~65 |
| Sample #4 | (90-01-019) - | (b) (6) | | |
| Prep # | Total Asb. % | Chrysotile % | Crocidolite % | Remainder % * |
| Α , | ~50 | ~20 | ~30 | ~50 |
| В | ~45 | ~20 | ~25 | ~55 |
| С | ~35 | ~15 | ~20 | .~65 |
| D . | ~40 | ~15 | ~25 | ~60 |
| Sample #5 | (90-01-08) | 0) (6) | | |
| Prep # | Total Asb. % | Chrysotile % | Crocidolite % | Remainder % * |
| Α . | ~42* | ~20 | ~20 | ~58 |
| | *traces of ri | gid asbestiform | • | |
| | | ke amosite, but | | |
| | dispersion co | | | 8 2 |
| В | ~50 | ~25 | ~25 | ~50 |
| C , | ~45 | ~18 | ~27 | ~55 |
| D | ~50 | ~27-1/2 | ~22-1/2 | ~50% |
| Sample #6 (90-01-017) - | | | | |
| Prep # | Total Asb.% | Chrysotile % | Crocidolite % | Remainder % * |
| Α | ~45 | ~25 | ~20 | ~55 |
| В | ~45 | ~20 | ~25 | ~55 |
| C | ~50 | ~20 | ~30 | ~50 |
| D | ~45 | ~20 | ~25 | ~55 |
| E | ~40 | ~25 | ~15 | ~60 |

| | (v) | | (5) SteenSA | |
|-------------------------------------------------------------------------------------------------|----------------------|-----------------------|--------------------------|----------------------|
| Sample # | 7 (90-01-021) | (b) (6) | | |
| Prep # | Total Asb.% | Chrysotile % | Crocidolite % | Remainder % * |
| A B | ~35 ~30 | ~10 ~12 | ~25 ~18 | ~65 ~70 |
| Sample # | 8 (90-01-020) | (b) (6) | | |
| Prep # | Total Asb.% | Chrysotile % | Crocidolite % | Remainder % * |
| A B C | ~35-40 ~40 ~45 | ~14 ~20 ~27-1/2 | ~21-24 ~20 ~27-1/2 | ~60-65 ~60 ~55 |
| D | ~45 | ~27-1/2 | ~27-1/2 | ~55 |
| Sample #9 (90-01-015) - (b) (6) | | | | |
| Prep # | Total Asb.% | Chrysotile % | Crocidolite % | Remainder % * |
| A | ~52* | ~14 | ~36 | ~48 |
| <pre>*a few percent rigid asbestiform, morphology like Amosite but dispersion colors off.</pre> | | | | y |
| В | ~55 | ~35 | ~20 | ~45 |
| C · | ~48* | ~10 | ~35 | ~52 |
| | | asbestiform, mor | | |
| D . | ~50 | but dispersion | ~35 | ~50 |
| E. | ~30 | ~20 | ~10 | ~70 |
| Sample #10 (90-01-014) (b) (6) | | | | |
| Prep # | Total Asb.% | Chrysotile % | Crocidolite % | Remainder % * |
| A B | ~60 ~40 | ~36 ~24 | ~24 ~16 | ~40 ~60 |

A STATE OF THE PARTY OF THE PAR

#90-01-22 Portable Hi-Volume Air Sampler by Anderson - taken at Texaco facility, River Road (2nd lot back near 4th Street)

FLOW RATE: ~ 28 CUBIC FEET/MINUTE (for approximately 188 minutes)

TOTAL FLOW: 5354.45 FT.³

TOTAL FIBERS: < 400 fibers (all cellulose, fiberglass, and vegetative

fibers <u>discounted</u> on standard hi-vol filter at 100X

magnification on PLM.)

TOTAL MEASURED FIBER COUNT: <400/5354.45 ft3

CONVERTED TO APPROXIMATELY .000003 FIBERS/cc air or .0003% asbestos

DEB:pb

Attachments

TDD No. 06-9002-08

ATTACHMENT 2

EPA-ERT Asbestos Sampling SOP

(16 pages)

ASBESTOS SAMPLING

TABLE OF CONTENTS

| 1.0 SCOPE AND APPLI | CA | TT | ΛN |
|---------------------|----|----|----|
|---------------------|----|----|----|

METHOD SUMMARY 2.0

- 2.1 Sample Pumps
 - 2.1.A Personal Sampling Pumps 2.1.B Hi Flow Pumps
- Outdoor/Ambient Sampling
- Indoor/Ambient Sampling
 - 2.3A Aggressive Sampling
 - Aggressive Sampling Procedures 2.3B
- SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE 3.0
 - 3.1 Filter Selection and Collection Device
 - 3.2 Sample Handling Procedures
- INTERFERENCES AND POTENTIAL PROBLEMS
 - 4.1 NIOSH Method 7400 (PCM)
 - 4.2 EPA TEM Method
- 5.0 **EOUIPMENT**
 - 5.1 Equipment List Personal Sampling Pump
 - 5.2 Equipment List High Flow Pump
- 6.0 REAGENTS
- 7.0 **PROCEDURES**
 - 7.1 Field Procedures Personal Sampling Pump 7.2 Field Procedures High Flow Pump

 - 7.3 Calibration Procedures
- CALCULATION 8.0
- QUALITY ASSURANCE/QUALITY CONTROL 9.0
 - 9.1 Electronic Calibrator Procedures Personal Sampling Pump 9.2 Electronic Calibrator Procedures Rotometer

 - 9.3 Sampling Pump Calibration Rotometer
- DATA VALIDATION 10.0
- 11.0 HEALTH AND SAFETY
- 12.0 REFERENCES
- 13.0 APPENDICES
 - NIOSH Method 7400 PCE Α.
 - В. EPA TEM Method

ASBESTOS SAMPLING

1.0 SCOPE AND APPLICATION

The objective of this document is to provide a standard operating procedure (SOP) to be utilized by USEPA Environmental Response Team (ERT) and Response, Engineering, and Analytical Contract (REAC) for sampling asbestos fibers in indoor and outdoor/ambient air at hazardous waste sites.

Regulations pertaining to asbestos have been promulgated by EPA and OSHA. EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP) regulates asbestos-containing waste materials. NESHAP establishes management practices and standards for the handling of asbestos and emissions from waste disposal operations (40 CFR Part 61, Subparts A and M).

EPA's 40 CFR 763 (July 1, 1987) [1] and its addendum 40 CFR 763 October 30, 1987 [2] provide comprehensive rules for the asbestos abatement industry.

State and local regulations on these issues vary and may be more stringent than federal requirements.

The OSHA regulations in 29 CFR 1910.1001 and 29 CFR 1926.58 specify work practices and safety equipment such as respiratory protection and protective clothing when handling asbestos.

The OSHA standard for an 8-hour, time-weighted average (TWA) is 0.2 fibers/cubic centimeters of air. This standard pertains to fibers with a length-to-width ratio of 3 to 1 with a fiber length >5 um [3,4].

Fibers less than 0.25 um in length will not be detected by Phase contract Microscopy. Transmission Electron Microscopy can detect very thin fibers typically down to 0.0025 um in diameter.

An action level of 0.1 fiber/cc (one-half the OSHA standard) is the level EPA has established in which employers must initiate such activities as air monitoring, employee training, and medical surveillance [3,4].

References to specific analytical methodologies are made throughout this document and can be found in the Appendices.

2.0 METHOD SUMMARY

Asbestos has been used in many commercial products including building materials such as flooring tiles and sheet goods; paints and coatings; insulation, and roofing asphalts. These products and others may be found at hazardous waste sites either hanging on overhead pipes, contained in drums, abandoned in piles, or as part of a structure. Asbestos tailing piles from mining operations can also be a source of ambient asbestos fibers.

Asbestos air sampling is conducted by drawing air through a filter at a known flow rate with a flow-controlled pump. The sample is then analyzed using Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM).

PCM analysis is widely available and is less costly than TEM. TEM is considered the best method for identifying airborne asbestos. TEM can detect very thin fibers typically down to 0.0025 um in diameter.

When TEM (EPA) is compared with data from PCM (NIOSH), the TEM's aspect ratio of 5 to 1 should be modified to 3 to 1.

2.1 Sample Pumps

In order to determine if a sampling pump is measuring the flow rate or volume of air correctly, it is necessary to calibrate the instrument. Sampling pumps should be calibrated immediately before and after each use. Preliminary calibration should be conducted using a primary calibrator such as a soap bubble type calibrator, e.g., a Buck Calibrator, Gilibrator, or equivalent primary calibrator with a representative filter cassette installed between the pump and the calibrator. The representative sampling cassette can be reused for calibrating other pumps that will be used for asbestos sampling. The same cassette lot used for sampling should also be used for the calibration. A sticker should be affixed to the outside of the extension cowl marked "Calibration Cassette." rotometer can be used provided it has been recently precalibrated with a primary calibrator. Three separate constant flow calibration readings should be obtained both before and after collecting the sample. Should the flow rate change by more than 5% during the sampling period, the average of the pre- and post-calibration rates will be used to calculate the total sample volume. Sampling pumps can be calibrated prior to coming on-site so that time is saved when performing on-site calibration.

2.1.A Personal Sampling Pumps

Personal sampling pumps are utilized when the flow rates are between .001 L/min to 5 L/min. Many lightweight portable pumps are capable of providing high or low volume air flow. See manufacturer's manual for pump operation.

2.1.B High Flow Pumps

High flow pumps are utilized when flow rates between 4 L/min to 16 L/min are required. High flow pumps are used for short sampling periods so as to obtain the desired sample volume. ERT uses the Gilian Aircon 520's. An equivalent high flow pump can also be used.

The high flow pumps usually run on AC power and can be plugged into a nearby outlet. If an outlet is not available then a generator should be obtained. The generator should be positioned downwind from the sampling pump. Additional voltage may be required if more than one pump is plugged into the same generator. Several electrical extension cords may be required if sampling locations are remote.

2.2 Outdoor/Ambient Sampling

ERT uses PCM analysis for outdoor/ambient air samples. When analysis shows total fiber count above the OSHA action level 0.1 f/cc then TEM can be used to identify asbestos from non-asbestos fibers. Some labs are able to perform PCM and TEM analysis on the same filter.

High volume pumps are, for the most part, used for outdoor sampling in low dusty areas. The samplers should be placed above ground level, about 4 to 5 feet high, away from obstructions that may influence air flow see Table 2.1.

Outdoor sampling usually requires flow rates between 10 to 15 L/min with a sample volume of 1000 to 5000 liters (PCM).

2.1.D.1 Environmental Data

Record wind speed, wind direction, temperature, and pressure in a field logbook. Wind direction is particularly important when monitoring for asbestos downwind from a fixed source. It is recommended that a meteorological station be established. If possible, sample after 2 to 3 days of dry weather and when the wind conditions are at 10 mph or greater.

TABLE 2.1. SAMPLING STATIONS

Sampling Station Location

Rationale

Upwind/Background Collect a minimum of 2 simul-

taneous upwind/background samples 30o apart from the

prevailing windlines.

Downwind. Deploy a minimum of 3 sampling

stations in a 1800 arc down-

wind from the source.

Indicates if asbestos is leaving the site.

Site Representative and/or Worse Case

Obtain one site representative sample which shows average condition on-site or obtain worse case sample (optional).

Verify and continually confirm and document selection of proper levels of worker protection.

Establishes background

fiber levels.

More than one background station may be required if the asbestos originates from different sources.

2.3 Indoor Sampling

ERT uses PCM analysis for indoor air samples. When analysis shows total fiber count above the OSHA action level 0.1 f/cc then TEM can be used to identify asbestos from nonasbestos fibers. See Section 2.0.

Sampling pumps should be placed 4 to 5 feet above ground level away from obstructions that may influence air flow. The pump can be placed on a table or counter. See Table 2.2.

Indoor sampling generally utilizes high flow rates and increased sample volumes in order to obtain lower detection limits, i.e., 0.01 f/cc or lower (PCM) and 0.005 structures/cc or lower (TEM).

2.3.A Aggressive Sampling

Sampling equipment at fixed locations may fail to detect the presence of fiber. Due to limited air movement, many fibers may settle out of the air onto the floor and other surfaces and may not be captured on the filter. In the past an 8-hour sampling period was recommended to cover various air circulation conditions. A quicker and more effective way to capture asbestos fibers is to circulate the air artificially so that the fibers remain airborne during sampling. The results from this sampling option typify worse case condition. This is referred to as aggressive air sampling for asbestos. For more detailed information see [7.4].

Note: The individual performing this task should follow regulations regarding respiratory protection 29 CFR 1910.1001

2.3.B Aggressive Sampling Procedures

- 1. Before starting the sampling pumps, direct forced air (such as a 1-horsepower leaf blower or large fan) against walls, ceilings, floors, ledges, and other surfaces in the room to initially dislodge fibers from surfaces. This should take at least 5 minutes per 1000 sq. ft. of floor.
- 2. Place a 20-inch fan in the center of the room. (Use one fan per 10,000 cubic feet of room space.) Place the fan on slow speed and point it toward the ceiling.
- 3. Start the sampling pumps and sample for the required time.
- 4. Turn off the pump and then the fan(s) when sampling is complete.

3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

3.1 Filter selection and collection device.

The filter selection and collection device for sample collection will depend upon which analytical methodology is utilized.

- a) NIOSH Method 7400: Phase Contrast Microscopy involves using a 0.8 to 1.2 um cellulose ester membrane, 25 mm diameter; 50 mm conductive cowl on cassette (see Figure 3.1).
- b) EPA Transmission Electron Microscopy involves using a 25 mm filter cassette with either a polycarbonate filter having a pore size ≤ 0.4 um or mixed cellulose ester filter (MCE) having a pore size ≤ 0.45 um. This cassette includes an extension cowl, a 5.0 um MCE backup filter, to serve as a diffuser, and a support pad (see Figure 3.2).

3.2 Sample Handling Procedures

- 1. Place a sample label on the cassette indicating a unique sampling number. Do not put sampling cassettes in shirt or coat pockets as the filter can pick up fibers. ERT uses the original cassette box to hold the samples.
- 2. Wrap the cassette individually in a plastic sample bag. Each bag should be marked indicating sample identification number, total volume, and date.
- 3. The wrapped sampling cassettes should be placed upright in a rigid container so that the cassette cap is on top and cassette base is on bottom. Use enough packing material to prevent jostling or damage. If possible, hand carry to lab.
- 4. Provide appropriate documentation with samples, i.e., chain of custody and requested analytical methodology.
- 5. Follow all QA/QC requirements from the lab as well as from the PCM/TEM analytical methodology, i.e., field blank, lot blank requirements.

TABLE 2.2. SAMPLING STATIONS

Sampling Station Location

Rationale

Indoor Sampling

If a work site is a single room, disperse 5 samplers throughout the room.

Establishes representative samples from a homogeneous area.

If the worksite contains up to 5 rooms, place at least one sampler in each room.

If the worksite contains more than 5 rooms, select a representative sample of the rooms.

Upwind/Background

If outside sources are suspected, deploy a minimum of two simultaneous upwind/background samples 30o apart from the prevailing windlines.

Establishes whether indoor asbestos concentrations are coming from an outside source.

Worse Case

Obtain one worse case sample, i.e., aggressive sampling (optional).

Verify and continually confirm and document selection of proper levels of worker protection.

4.0 INTERFERENCES AND POTENTIAL PROBLEMS

Flow rates should not exceed 16 L/min due to the possibility of asbestos fiber disintegration upon contact with the filter.

4.1 NIOSH Method 7400, PCM (can be found in Appendix A).

Limitations:

- 1. PCM cannot distinguish asbestos from nonasbestos fibers. All particles meeting the counting criteria are counted as total asbestos fibers.
- 2. Fiber less than 0.25 um in length will not be detected by this method.
- 3. High levels of non-fibrous dust particles may obscure fibers in the field of view and increase the detection limit.
- 4.2 EPA's TEM method (can be found in Appendix B).

Limitations

1. High concentrations of background dust interfere with fiber identification.

EOUIPMENT 5.0

- 5.1 Equipment List Personal Sampling Pump
 - Personal sampling pump (etc. Gilian Personal Sampler). Inert tubing with glass cyclone and hose barb.
 - 2.
 - 3. Sampling cassettes with conductive cowl.
 - 4. Appropriate membrane filters.
 - Rotometers. 5.
 - Whirlbags for cassettes. 6.
 - Tools small screw drivers. 7.
 - Sample labels. 8.
 - Air data sheets. 9.
 - 10. Container to keep samples upright.
- 5.2 Equipment List High Flow Pump
 - High flow pump (etc'. Gilian Aircon). Generator or electrical outlet.
 - 2.
 - Extension cords. 3.
 - 4. Rotometers.
 - 5. Inert tubing - unless provided with pump.
 - Sampling cassettes with conductive cowl. 6.
 - Appropriate membrane filters. 7.
 - 8. Whirlbags for cassettes.
 - 9. Sample labels.
 - 10. Air data sheets.
 - 11. Container to keep samples upright.

6.0 REAGENTS

There are no reagents used in the sampling phase or the analytical phase of Asbestos Sampling.

7.0 PROCEDURES

7.1 Field Procedures - Personal Sampling Pump

- 1. Charge the unit for the maximum required time as indicated in the manufacturer's manual.
- 2. Once on-site in the clean zone follow the calibration procedures in Section 9.1-9.3.
- 3. Mobilize to the sampling location.
- 4. To set up the sampling train, attach one end of the Polyvinyl Chloride (PVC) tubing (approx. 2 ft) to the cassette base; attach the other end of the tubing to the inlet plug on the pump (see Figure 7.1). The attachment between the cassette base and the tubing can best be achieved by using a hose barb with cyclone.
- 5. Place the sampling pump 6 ft. above ground level (in the breathing zone) and in an area that will not be affected by unusual air flow. The sampling pump and cassette can be placed on a sturdy structure, attached to a downly or hooked to an object, i.e., fence.
- 6. Remove the cassette cap from the extension cowl (open faced) and orient the cassette perpendicular to the wind.
- 7. Adjust the time on the pump. If the pump is programmable turn past the zero mark before setting the actual time.
- 8. Turn the pump on.
- 9. Record the following in a field logbook:
 - a. Date, time, location (area or room), sample identification number, and pump number.
 - b. Flow rate and desired total sampling time.
- 10. Record weather data (i.e. ambient temperature, wind direction, windspeed, precipitation).
- 11. Check the pump at midpoint of the sampling period if longer than 4 hours.
- 12. If a filter darkens in appearance of if loose dust is seen in the filter, a second sample should be started.
- 13. At the end of the sampling period, check the fault button to obtain pump sampling time. (This indicates whether or not the pump ran the full programmable timespan). Be sure to orient the cassette in an upright position to prevent fibers from falling from the filter when the vacuum is released.
- 14. Record the pump run time (finish time minus start time).
- 15. Perform post calibration procedures as shown in Section 9.0
- 16. Record the post flow rate in a field logbook.
- 17. Remove the PVC tubing from the sampling cassette. Still holding the cassette upright, replace the inlet plug on the cassette cap.
- 18. Place the outlet plug on the cassette base.
- 19. Refer to Section 3.2, Steps 1-5 for sample handling procedures.

7.2 Field Procedures - High Flow Pump

The following instructions are for a Gilian Aircon 520 Constant High Flow Air Sampler and is used for illustrative purposes; an equivalent high flow pump can be used instead.

1. Once on-site the calibration is performed in the clean zone. The calibration procedures for personal sampling pumps listed in Section 9.1 are also applicable to high volumes sampling pumps.

2. After calibrating the high volume sampler, mobilize to the sampling location.

- 3. To set up the sampling train, attach the air intake hose to the cassette base. Remove the cassette cap. The cassette should be positioned perpendicular to the wind (See Figure 7.2).
- 4. Turn the generator on. The generator should be placed 10 ft. downwind from the sampling pump.
- 5. Record the pumps cumulative time (if applicable).

6. Record the following in a field logbook:

- a. Date, time, location, sample identification number, and pump number.
- b. Flow rate and cumulative time.
- 7. Record weather: wind speed, ambient temperature, wind direction, and precipitation.

8. Turn the pump on.

- 9. Check the pump at sampling midpoint if longer than 4 hours.
- 10. At the end of the sampling period, orient the cassette up, turn the pump off.

11. Record the cumulative time (if applicable).

12. Check the flow rate as shown in section 9.0. The sampling cap is replaced before calibrating.

13. Record the post flow rate.

- 14. Remove the tubing from the sampling cassette. Still holding the cassette upright, replace the inlet plug on the cassette cap and the outlet plug on the cassette
- 15. Refer to Section 3.2 steps 1-5 for sample handling procedures.

7.3 Calibration Procedures

EPA/ERT uses an electronic calibrator for calibrating rotometers and pumps. Refer to Section 9.1-9.3 for calibration procedures.

8.0 CALCULATIONS

8.1 Sample volume and flow rate

The sampling volumes are determined on the basis of how many fibers need to be collected for reliable measurements. Therefore, one must estimate how many airborne fibers may be in the sampling location.

Since the concentration of airborne aerosol contaminants will have some effect on the sample, the following is a suggested criteria to assist in selecting a flow rate based on real-time aerosol monitor readings in mg/m3.

| | | Concentration | Flow Rate |
|----|------------------------------------|------------------------|-------------|
| 1. | Low real-time monitor readings: | <6.0 mg/m | 11-15 L/min |
| 2. | Medium real-time monitor readings: | \geq 6.0 mg/m3 | 7.5 L/min |
| 3. | High real-time monitor readings: | $\frac{1}{2}$ 10 mg/m3 | 2.5 L/min |

- a) PCM utilizes flow rates between 0.5 L/min and 16 L/min. Sampling time is adjusted to obtain optimum fiber loading on the filter. A sampling rate of 1 to 4 L/min for 8 hrs is appropriate in non-dusty atmospheres containing 0.1 fiber/cc. Dusty atmospheres i.e., areas with high levels of asbestos, require smaller sample volumes (<400 L) to obtain countable samples. cases, take short, consecutive samples and average the results over the total collection time. documenting episodic exposures, use high flow rates (7 to 16 L/min) over shorter sampling times. relatively clean atmospheres where targeted fiber concentrations are much less than 0.1 fiber/cc, use larger sample volumes (3,000 to 10,000 L) to achieve quantifiable loadings. Take care, however, not to overload the filter with background dust. If \geq 50% of the fiber surface is covered with particles, the filter may be too overloaded to count and will bias the measured fiber concentration. Do not exceed 0.5 mg total dust loading on the filter.
- b) EPA's TEM requires a minimum volume of 560 liters (L) and a maximum volume of 3,800 L in order to obtain an analytical sensitivity of 0.005 structures/cc. The optimal volume for TEM is 1200 L to 1800 L. These volumes are determined using a 200 mesh EM grid opening with a 25-mm filter cassette. Changes in volume would be necessary if a 37-mm filter cassette is used since the effective area of a 25 mm (385 sq mm) and 37 mm (855 sq m) differ. (See Table 1 in the TEM Methodology, Appendix B.)

9.0 QUALITY ASSURANCE/QUALITY CONTROL

Follow all QA/QC requirements listed in the analytical method.

Generally field blanks are required for each set of samples or 10% of the total samples, whichever is greater.

The laboratory analyzing the samples should determine the lot blank requirements. There should be no less than 1 lot blank per cassette lot.

- 9.1 Calibrating a personal sampling pump with an electronic calibrator.
 - 1. See manufacturer's manual for operational instructions.
 - Set up the calibration train as shown in Figure 9.1
 using a sampling pump, electronic calibrator, and a
 representative filter cassette. The same lot sampling
 cassette used for sampling should also be used for
 calibrating.
 - 3. To set up the calibration train, attach one end of the PVC tubing (approx. 2 foot) to the cassette base; attach the other end of the tubing to the inlet plug on the pump. Another piece of tubing is attached from the cassette cap to the electronic calibrator.
 - 4. Turn the electronic calibrator and sampling pump on. Create a bubble at the bottom of the flow chamber by pressing the bubble initiate button. The bubble should rise to the top of the flow chamber. After the bubble runs its course, the flow rate is shown on the LED display.
 - 5. Turn the flow adjust screw or knob on the pump until the desired flow rate is attained.
 - 6. Perform the calibration 3 times until the desired flow rate of \pm 5% is attained.
- 9.2 Calibrating a rotometer with an electronic calibrator.
 - See manufacturer's manual for operational instructions.
 - Set up the calibration train as shown in Figure 9.2 using a sampling pump, rotometer, and electronic calibrator.
 - 3. Assemble the base of the flow meter with the screw provided and tighten in place. The flow meter should be mounted within 60 vertical.
 - 4. Turn the electronic calibrator and sampling pump on.
 - 5. Create a bubble at the bottom of the flow chamber by pressing the bubble initiate button. The bubble should rise to the top of the flow chamber. After the bubble runs its course, the flow rate is shown on the LED display.
 - 6. Turn the flow adjust screw or knob on the pump until the desired flow rate is attained.

- Record the electronic calibrator flow rate reading and the corresponding rotometer reading. Indicate these values on the rotometer (sticker). The rotometer should be able to work within the desired flow range.
- Perform the calibration 3 times until the desired flow rate of + 5% is attained.

Once on site, a secondary calibrator, i.e., rotometer is used to calibrate sampling pumps.

- 9.3 Calibrating a sampling pump with a rotômeter.
 - See manufacturer's manual for Rotometer's Operational 1. Instructions.
 - Set up the calibration train as shown in Figure 9.3 using a rotometer, sampling pump, and a representative sampling cassette.
 - To set up the calibration train, attach one end of the PVC tubing (approx. 2 ft) to the cassette base; attach the other end of the tubing to the inlet plug on the Another piece of tubing is attached from the cassette cap to the rotometer.
 - Assemble the base of the flow meter with the screw provided and tighten in place. The flow meter should be mounted within 60 vertical.

 - Turn the sampling pump on.
 Turn the flow adjust screw (or knob) on the personal sampling pump until the float ball on the rotometer is lined up with the precalibrated flow rate value. A sticker on the rotometer should indicate this value.
 - A verification of calibration is generally preformed onsite in the clean zone immediately prior to the sampling.

10.0 DATA VALIDATION

.

PCM analysis does not distinguish between asbestos and non-asbestos fibers, all fibers meeting the criteria are counted. TEM analysis can distinguish asbestos from non-asbestos fibers. This method of analysis should be used when the total fiber count is above the action level (or level of concern) so as to determine whether the airborne fiber is of asbestos origin.

Note: The flow rate and time should be adjusted to obtain optium fiber loading on the filter.

11.0 HEALTH AND SAFETY

When entering an unknown situation involving asbestos, a powered air purifying respirator (PAPR) (full face-piece) is necessary in conjunction with HEPA filter cartridges. See applicable regulations for action level, PEL, TLV, etc. If previous sampling indicates asbestos concentrations are below the action level, then EPA Level D personal protection is adequate.

12.0 REFERENCES

- 1. U.S. Environmental Protection Agency. Code of Federal Regulations 40 CFR 763. July 1, 1987.
- 2. U.S. Environmental Protection Agency. Asbestos-Containing Materials in Schools; Final Rule and Notice. 52 FR 41826.
- 3. Occupational Safety and Health Administration. Code of Federal Regulations 29 CFR 1910.1001. Washington, D.C. 1987.
- 4. Occupational Safety and Health Administration. Code of Federal Regulations 29 CFR 1926.58. Washington, D.C. 1987.
- 5. National Institute for Occupational Safety and Health.
 NIOSH Manual of Analytical Method. Third Edition. 1987.
- 6. Turpin, Rodney. Generic Asbestos Air Monitoring Guide for Hazardous Sites. U.S. Environmental Protection Agency Environmental Response Team. January 1985.
- 7. U.S. Environmental Protection Agency. Field Standard Operating Procedures (FSOP) #8 Air Surveillance, Office of Emergency and Remedial Response, Hazardous Response Support Division, Environmental Response Team. January 1985.
- 8. Keyes, D.L., Price, B.P., and Chesson, J. Guidance for Controlling Asbestos-Containing Materials in Buildings; U.S. Environmental Protection Agency, EPA 560/5-85-024. June 1985.

TDD No. 06-9002-27

ATTACHMENT 3

NIOSH Method 7400

(13 pages)

FORMULA: various

FIBERS

METHOD: 7400

M.W.: various

ISSUED: 2/15/84

REVISION #2: 8/15/87

OSHA: 0.2 asbestos fibers (> 5 µm long)/mL [1]

PROPERTIES: solid.

NIOSH: 0.1 asbestos f/ml. [1]; 3 glass fibers (>10 µm x <3.5 µm)/ml. [3]

fibrous

ACGIH: 0.2 crocidolite; 0.5 amosite; 2 chrysotile and other asbestos, f/mL

TIDIOUS

SYNONYMS: actinolite asbestos [CAS #13768-00-8], grunerite asbestos (amosite) [CAS #12172-73-5], anthophyllite asbestos [CAS #17068-78-9], chrysotile asbestos [CAS #12001-29-5], crocidolite asbestos [CAS #12001-28-4], tremolite asbestos [CAS #14567-73-8]; fibrous glass.

| - | - |
|---|-------|
| • | 1 |

MEASUREMENT

SAMPLER: FILTER

(0.8- to 1.2- µm cellulose ester membrane, 25-mm diameter; conductive

cowl on cassette)

FLOW RATE*: 0.5 to 16 L/min (see step 4)

VOL-MIN*: 400 L @ 0.1 fiber/mL (see step 4)

-MAX*: (see step 4)

*Adjust for 100 to 1300 fibers/mm² (step 4)

SHIPMENT: routine (securely packed to reduce

shock)

SAMPLE STABILITY: stable

FIELD BLANKS: 10% (>2) of samples

ACCURACY

RANGE STUDIED: 80 to 100 fibers counted

BIAS: see EVALUATION OF METHOD

OVERALL PRECISION (sp): 0.115 to 0.13

(A Rules) [3]

ITECHNIQUE: LIGHT MICROSCOPY, PHASE CONTRAST

!!ANALYTE: fibers (manual count)

ISAMPLE PREPARATION: acetone/triacetin "hot

block" method [5]

!COUNTING RULES: Set A (required by OSHA; [1,4])

or Set B (modified CRS [6])

!EQUIPMENT: 1. positive phase-contrast microscope

2. Walton-Beckett graticule (100-µm field of view): A Rules use Type G-22; B Rules use Type G-24

3. phase-shift test slide (HSE/MPL)

ICALIBRATION: HSE/NPI test slide

IRANGE: 100 to 1300 fibers/mm2 filter area

IESTIMATED LOD: 7 fibers/mm2 filter area

!PRECISION: 0.10 to 0.12 (A Rules) [3]

(see Evaluation of Method:B)

APPLICABILITY: The method gives an index of airborne fibers in workplace atmospheres. Phase contrast microscopy will not differentiate between asbestos and other fibers; use this method in conjunction with electron microscopy (e.g., Method 7402) for positive identification.

Fibers < ca. 0.25 µm diameter will not be detected by this method [7].

INTERFERENCES: Any other airborne fiber may interfere since all particles meeting the counting

criteria are counted. Chain-like particles may appear fibrous. High levels of non-fibrous dust particles may obscure fibers in the field of view and increase the detection limit.

OTHER METHODS: This method introduces changes for improved sensitivity and reproducibility.

It replaces P&CAM 239 [4,8] and Method 7400, Revision #1 (dated 5/15/85).

8/15/87

7400-1

METHOD: 7400

REAGENTS:

- 1. Acetone.*
- Triacetin (glycerol triacetate), reagent grade.

*See SPECIAL PRECAUTIONS.

EQUIPMENT:

- Sampler: field monitor, 25-mm, three-piece cassette with ca. 50-mm electrically-conductive extension cowl and cellulose ester filter, 0.8- to 1.2-µm pore size, and backup pad.
 - MOTE 1: Analyze representative filters for fiber background before use. Discard the filter lot if mean is > 5 fibers per 100 graticule fields. These are defined as laboratory blanks.
 - NOTE 2: Use an electrically-conductive extension cowl to reduce electrostatic effects. Ground the cowl when possible during sampling.
- Personal sampling pump, 0.5 to 16 L/min (see step 4 for flow rate), with flexible connecting tubing.
- Microscope, positive phase contrast, with green or blue filter, 8 to 10X eyeplece, and 40 to 45X phase objective (total magnification ca. 400X); numerical aperture = 0.65 to 0.75.
- 4. Slides, glass, frosted-end, pre-cleaned, 25 x 75 mm.
- Cover slips, 22 x 22 mm, No. 1-1/2, unless otherwise specified by microscope manufacturer.
- 6. Lacquer or nail polish.
- 7. Knife, #10 surgical steel, curved blade.
- R. Tweezers.
- Heated aluminum block for clearing filters on glass slides (see ref. [5] for instructions on manufacture).
- 10. Micropipets, 5-µL and 100- to 500-µL.
- 11. Graticule, Walton-Beckett type with 100-µm diameter circular field (area = 0.00785 mm²)at the specimen plane (Type G-22 for A Rules; Type G-24 for B Rules). Available from PTR Optics Ltd., 145 Newton Street, Waltham, MA 02154 [phone (617) 891-6000] and McCrone Accessories and Components, 850 Pasquinelli Drive, Westmont, IL 60559 [phone (312) 887-7100].

MOTE: The graticule is custom-made for each microscope.

Specify disc diameter needed to fit exactly the ocular of the microscope and the diameter (mm) of the circular counting area (see APPENDIX A).

- HSE/NPL phase contrast test slide, Mark II. Available from PTR Optics Ltd. (address above).
- 13. Telescope, ocular phase-ring centering.
- 14. Stage micrometer (0.01-mm divisions).
- 15. Wire, multi-stranded, 22-gauge.

SPECIAL PRECAUTIONS: Acetone is extremely flammable. Take precautions not to ignite it. Heating of acetone in volumes greater than 1 mL must be done in a ventilated laboratory fume hood using a flameless, spark-free heat source.

SAMPLING:

1. Calibrate each personal sampling pump with a representative sampler in line.

8/15/87

7400-2

METHOD: 7400 FIBERS

For personal sampling, fasten sampler to the worker's lapel near the worker's mouth. Remove top cover from cowl extension (open face) and orient face down. Wrap joint between cowl and monitor body with shrink tape to prevent air leaks.

NOTE: If possible, ground the cassette to remove any surface charge, using a wire held in contact (e.g., with a hose clamp) with the conductive cowl and a non-electrical metal fixture, or a cold-water pipe.

- 3. Submit at least two field blanks (or 10% of the total samples, whichever is greater) for each set of samples. Remove top covers from the field blank cassettes and store top covers and cassettes in a clean area (bag or box) with the top covers from the sampling cassettes during the sampling period. Replace the top covers in the cassettes after sampling.
- 4. Sample at 0.5 L/min or greater [9]. Adjust sampling flow rate, Q (L/min), and time, t (min), to produce a fiber density, E, of 100 to 1300 fibers/mm² (3.85 \cdot 104 to 5 \cdot 105 fibers per 25-mm filter with effective collection area $A_{c}=385$ mm²) for optimum accuracy. These variables are related to the action level (one-half the current standard), L (fibers/mL), of the fibrous aerosol being sampled by:

$$t = \frac{(A_c)(E)}{(0)(L)10^a}$$

NOTE 1: The purpose of adjusting sampling times is to obtain optimum fiber loading on the filter. A sampling rate of 1 to 4 L/min for 8 hrs is appropriate in non-dusty atmospheres containing ca. 0.1 fiber/mL. Dusty atmospheres require smaller sample volumes (≤400 L) to obtain countable samples. In such cases také short, consecutive samples and average the results over the total collection time. For documenting episodic exposures, use high flow rates (7 to 16 L/min) over shorter sampling times. In relatively clean atmospheres, where targeted fiber concentrations are much less than 0.1 fiber/mL, use larger sample volumes (3000 to 10000 L) to achieve quantifiable loadings. Take care, however, not to overload the filter with background dust. If ≥ 50% of the filter surface is covered with particles, the filter may be too overloaded to count and will bias the measured fiber concentration.

NOTE 2: OSHA regulations specify a maximum sampling rate of 2.5 L/min [1].

- 5. At the end of sampling, replace top cover and small end caps.
- Ship samples with conductive cowl attached in a rigid container with packing material to prevent jostling or damage.

NOTE: Do not use untreated polystyrene foam in shipping container because electrostatic forces may cause fiber loss from sample filter.

SAMPLE PREPARATION:

NOTE: The object is to produce samples with a smooth (non-grainy) background in a medium with refractive index ≤ 1.46. This method collapses the filter for easier focusing and produces permanent mounts which are useful for quality control and interlaboratory comparison. The aluminum "hot block" technique may be used outside the laboratory [5]. Other mounting techniques meeting the above criteria may also be used (e.g., the laboratory fume hood procedure for generating acetone vapor as described in Method 7400 - revision of 5/15/85, or the non-permanent field mounting technique used in P&CAM 239 [2,4,8,22]). A videotape of the mounting procedure is available from the NIOSH Publication Office [20].

- 7. Ensure that the glass slides and cover slips are free of dust and fibers.
- 8. Adjust the rheostat to heat the "hot block" to ca. 70 °C [5].

NOTE: If the "hot block" is not used in a fume hood, it must rest on a ceramic plate and be isolated from any surface susceptible to heat damage.

8/15/87

7400-3

F18ERS METHOD: 7400

9. Mount a wedge cut from the sample filter on a clean glass slide.

a. Cut wedges of ca. 25% of the filter area with a curved-blade steel surgical knife using a rocking motion to prevent tearing. Place wedge, dust side up, on slide. NOTE: Static electricity will usually keep the wedge on the slide.

- b. Insert slide with wedge into the receiving slot at base of "hot block". Place tip of a micropipet containing ca. 250 µL acetone into the inlet port of the PIFE cap on top of the "hot block". Inject the acetone into the vaporization chamber with a slow, steady pressure on the plunger button while holding pipet firmly in place. After waiting 3 to 5 sec for the filter to clear, remove pipet and slide from their ports.
 - CAUTION: Although the volume of acetone used is small, use safety precautions. Work in a well-ventilated area (e.g., laboratory fume hood). Take care not to ignite the acetone. Continuous, frequent use of this device in an unventilated space may produce explosive acetone vapor concentrations.
- c. Using the 5-µL micropipet, immediately place 3.0 to 3.5 µL triacetin on the wedge. Gently lower a clean cover slip onto the wedge at a slight angle to reduce bubble formation.
 - NOTE: If too many bubbles form or the amount of triacetin is insufficient, the cover slip may become detached within a few hours. If excessive triacetin remains at the edge of the filter under the cover slip, fiber migration may occur.
- d. Glue the edges of the cover slip to the slide using lacquer or nail polish [10] Counting may proceed immediately after clearing and mounting are completed.
 - MOTE: If clearing is slow, warm the slide on a hotplate (surface temperature 50 °C) for up to 15 min to hasten clearing. Heat carefully to prevent gas bubble formation.

CALIBRATION AND QUALITY CONTROL:

- 10. Microscope adjustments. Follow the manufacturers instructions. At least once daily use the telescope ocular supplied by the manufacturer to ensure that the phase rings (annular diaphragm and phase-shifting elements) are concentric. With each microscope, keep a logbook in which to record the dates of microscope cleanings, adjustments, and calibrations.
 - a. Each time a sample is examined, do the following:
 - Adjust the light source for even illumination across the field of view at the condenser iris. With some microscopes, the illumination may have to be set up with bright field optics rather than phase contract optics.
 NOTE: Use Köhler illumination if available.
 - (2) Focus on the particulate material to be examined.
 - (3) Make sure that the field iris is in focus, centered on the sample, and open only enough to fully illuminate the field of view.
 - b. Check the phase-shift detection limit of the microscope periodically for each analyst/microscope combination:
 - (1) Center the MSE/MPL phase-contrast test slide under the phase objective.
 - (2) Bring the blocks of grouved lines into focus in the graticule area.
 - MOTE: The slide contains seven blocks of grooves (ca. 20 grooves per block) in descending order of visibility. For asbestos counting the microscope optics must completely resolve the grooved lines in block 3 although they may appear somewhat faint, and the grooved lines in blocks 6 and 7 must be invisible when observing them in the center of the graticule area. Blocks 4 and 5 must be at least partially visible but may vary slightly in visibility between microscopes. A microscope which fails to meet these requirements has resolution either too low or too high for fiber counting.
 - (3) If image quality deteriorates, clean the microscope optics. If the problem persists, consult the microscope manufacturer.

8/15/87

7400-4

11. Document the laboratory's precision for each counter for replicate fiber counts.

- a. Maintain as part of the laboratory quality assurance program a set of reference slides to be used on a daily basis. These slides should consist of filter preparations including a range of loadings and background dust levels from a variety of sources including both field and PAT samples. The Quality Assurance Officer should maintain custody of the reference slides and should supply each counter with a minimum of one reference slide per workday. Change the labels on the reference slides periodically so that the counter does not become familiar with the samples.
 - b. From blind repeat counts on reference slides, estimate the laboratory intra— and intercounter s_r (see step 21). Obtain separate values of relative standard deviation for each sample matrix analyzed in each of the following ranges: 5 to 20 fibers in 100 graticule fields, 21 to 50 fibers in 100 graticule fields, 51 to 100 fibers in 100 graticule fields, and 100 fibers in less than 100 graticule fields. Maintain control charts for each of these data files.
 - NOTE 1: Since fiber counting is the measurement of randomly placed fibers which may be described by a Poisson distribution, a square root transformation of the fiber count data will result in approximately normally distributed data.
 - NOTE 2: Certain sample matrices (e.g., asbestos cement) have been shown to give poor precision [6]
- Prepare and count field blanks along with the field samples. Report counts on each field blank.
 - NOTE 1: The identity of blank filters should be unknown to the counter until all counts have been completed.
 - NOTE 2: If a field blank yields greater than 7 fibers per 100 graticule fields, report possible contamination of the samples.
- 13. Perform blind recounts by the same counter on 10% of filters counted (slides relabeled by a person other than the counter). Use the following test to determine whether a pair of counts by the same counter on the same filter should be rejected because of possible bias: Discard the sample if the difference between the two counts exceeds 2.77 (X)s_p, where X = average of the two fiber counts and s_p = intracounter relative standard deviation from step 11.
 - MOTE: If a pair of counts is rejected by this test, recount the remaining samples in the set and test the new counts against the first counts. Discard all rejected paired counts. It is not necessary to use this statistic on blank counts.
- 14. Enroll each new counter in a training course which compares performance of counters on a variety of samples using this procedure.
 - NOTE: All laboratories engaged in asbestos counting should participate in a proficiency testing program such as the AIHA-NIOSH Proficiency Analytical Testing (PAT) Program and routinely exchange field samples with other laboratories to compare performance of counters.

MEASUREMENT:

- 15. Center the slide on the stage of the calibrated microscope under the objective lens. Focus the microscope on the plane of the filter.
- 16. Adjust the microscope (Step 10) [7].
 - NOTE: Calibration with the MSE/NPL test slide determines the minimum detectable fiber diameter (ca. 0.25 µm).
- 17. Select one of the following sets of counting rules:
 - NOTE: The two sets of rules have produced approximately equivalent mean counts on a variety of asbestos sample types [6]. OSHA regulations require the use of the A rules [1]. In either case, the rules must be strictly followed to obtain valid results. No hybridizing of the two sets of rules is permitted.

8/15/87

7400-5

- a. A Rules (same as P&CAM 239 rules [2,4,8]; see APPENDIX B).
 - Count only <u>fibers</u> longer than 5 µm. Measure length of curved fibers along the curve.
 - 2. Count only fibers with a length-to-width ratio equal to or greater than 3:1.
 - 3. For fibers which cross the boundary of the graticule field:
 - a. Count any fiber longer than 5 um which lies entirely within the graticule area.
 - b. Count as 1/2 fiber any fiber with only one end lying within the graticule area, provided that the fiber meets the criteria of rules a.1. and a.2.
 - c. Do not count any fiber which crosses the graticule boundary more than once.
 - d. Reject and do not count all other fibers.
 - Count bundles of fibers as one fiber unless individual fibers can be identified by observing both ends of a fiber.
 - Count enough graticule fields to yield 100 fibers. Count a minimum of 20 fields.Stop at 100 graticule fields regardless of count.
- b. B Rules (see APPENDIX B)
 - Count only ends of fibers. Each fiber must be longer than 5 µm and less than 3 µm diameter.
 - 2. Count only ends of fibers with a length-to-width ratio equal to or greater than 5:1.
 - Count each fiber end which falls within the graticule area as one end, provided that the fiber meets rules b.1 and b.2. Add split ends to the count as appropriate if the split fiber segment also meets the criteria of rules b.1 and b.2.
 - 4. Count visibly free ends which meet rules b.1 and b.2 when the fiber appears to be attached to another particle, regardless of the size of the other particle. Count the end of a fiber obscured by another particle if the particle covering the fiber end is less than 3 µm in diameter.
 - Count free ends of fibers emanating from large clumps and bundles up to a maximum of 10 ends (5 fibers), provided that each segment meets rules b.1 and b.2.
 - Count enough graticule fields to yield 200 ends. Count a minimum of 20 graticule fields. Stop at 100 graticule fields, regardless of count.
 - 7. Divide total end count by 2 to yield fiber count.
- 18. Start counting from the tip of the filter and progress along a radial line to the outer edge. Shift up or down on the filter, and continue in the reverse direction. Select graticule fields randomly by looking away from the eyepiece briefly while advancing the mechanical stage. Ensure that, as a minimum, each analysis covers one radial line from the filter center to the outer edge of the filter. When an agglomerate covers ca. 1/6 or more of the graticule field, reject the graticule field and select another. Do not report rejected graticule fields in the total number counted.
 - NOTE 1: When counting a graticule field, continuously scan a range of focal planes by moving the fine focus knob to detect very fine fibers which have become embedded in the filter. The small-diameter fibers will be very faint but are an important contribution to the total count. A minimum counting time of 15 seconds per field is appropriate for accurate counting.
 - NOTE 2: This method does not allow for differentiation of fibers based on morphology.

 Although some experienced counters are capable of selectively counting only fibers which appear to be asbestiform, there is presently no accepted method for ensuring uniformity of judgment between laboratories. It is, therefore, incumbent upon all laboratories using this method to report total fiber counts. If serious contamination from non-asbestos fibers occurs in samples, other techniques such as transmission electron microscopy must be used to identify the asbestos fiber fraction present in the sample (see NIOSH Method 7402). In some cases (i.e., for fibers with diameters > 1 µm), polarized light microscopy (e.g., NIOSH Method 7403) may be used to identify and eliminate interfering non-crystalline fibers.

8/15/87

7400-6

METHOD: 7400 FIBERS

CALCULATIONS AND REPORTING OF RESULTS:

19. Calculate and report fiber density on the filter, E (fibers/mm²), by dividing the total fiber count per graticule field, F/n_f , minus the mean field blank count per graticule field, B/n_b , by the graticule field area, A_f (0.00785 mm² for a properly calibrated Walton-Beckett graticule):

$$E = \frac{(\frac{F}{n_f} - \frac{B}{n_b})}{A_f}$$
 fibers/mm².

NOTE: Fiber counts above 1300 fibers/mm² and fiber counts from samples with > 50% of filter area covered with particulate should be reported as "uncountable" or "probably biased."

20. Calculate and report the concentration, C (fibers/mL), of fibers in the air volume sampled, V (L), using the effective collection area of the filter, $A_{\rm C}$ (385 mm² for a 25-mm filter):

$$c = \frac{\Lambda \cdot 10_{a}}{(E)(V^{C})}$$

NOTE: Periodically check and adjust the value of A_C , if necessary.

21. Report intralaboratory and interlaboratory relative standard deviations (from Step 11) with each set of results.

NOTE: Precision depends on the total number of fibers counted [4,11]. Relative standard deviation (also called coefficient of variation) is documented in references [4,11,12,13] for fiber counts up to 100 fibers in 100 graticule fields. Comparability of interlaboratory results is discussed below. As a first approximation, use 213% above and 49% below the count as the upper and lower confidence limits for fiber counts greater than 20 (Fig. 1).

EVALUATION OF METHOD:

- A. This method is a revision of P&CAM 239 [2,4,8]. A summary of the revisions is as follows:
 - 1. Sampling:

The change from a 37-mm to a 25-mm filter improves sensitivity for similar air volumes. The change in flow rates allows for 2-m⁹ full-shift samples to be taken, providing that the filter is not overloaded with non-fibrous particulates. The collection efficiency of the sampler is not a function of flow rate in the range 0.5 to 16 L/min [9].

2. Sample Preparation Technique:

The acetone vapor-triacetin preparation technique is a faster, more permanent mounting technique than the dimethyl phthalate/diethyl oxalate method of P&CAM 239 [2,4,5,8,14]. The aluminum "hot block" technique minimizes the amount of acetone needed to prepare each sample.

- 3. Measurement:
 - a. The Walton-Beckett graticule standardizes the area observed [14,15].
 - b. The HSE/NPL test slide standardizes microscope optics for sensitivity to fiber diameter [7,14].

8/15/87

7400-7

c. An international collaborative study involved 16 laboratories using prepared slides from the asbestos cement, milling, mining, textile, and friction material industries [6]. The modified CRS (NIOSH 8) Rules were found to yield equivalent counts but were more precise than the AIA (NIOSH A)* Rules. The relative standard deviations (s_r) varied with sample type and laboratory. The ranges were:

| 9 | S _P | | |
|------------------------------|-----------------|-----------------|---------|
| | Intralaboratory | Interlaboratory | Overal1 |
| AIA (NIOSH A Rules)* | 0.12 to 0.40 | 0.27 to 0.85 | 0.46 |
| Modified CRS (NIOSH B Rules) | 0.11 to 0.29 | 0.20 to 0.35 | 0.25 |

*Under AIA rules, only fibers having a diameter less than 3 µm are counted and fibers attached to particles larger than 3 µm are not counted. NIOSH A Rules are otherwise similar to the AIA rules.

- d. The 8 Rules have also been favorably received by analysts as less ambiguous and simpler to use; these rules also showed the least bias relative to AIA rules in the collaborative study. An independent NIOSH laboratory study using amosite fibers reported a relative standard deviation, including within—and between—sample variability, of 0.16 for the 8 Rules [16]. Another NIOSH study was conducted using field samples of asbestos [19]. This study indicated intralaboratory s_p in the range 0.17 to 0.25 and an interlaboratory s_p of 0.45. This agrees well with other recent studies [6,11,13].
- e. Because of past inaccuracies associated with low fiber counts, the minimum recommended loading has been increased to 100 fibers/mm² filter area (80 fibers total count). This level should yield intracounter s_p in the range of 0.13 to 0.17 [4,8,16,19].
- B. Interlaboratory Comparability:

At this time, there is no independent method for assessing the overall accuracy of this method. One measure of reliability is to estimate how well the count for a single sample agrees with the mean count from a large number of laboratories. The following discussion indicates how this estimation can be carried out based on measurements of the interlaboratory variability, as well as showing how the results of this method relate to the theoretically attainable counting precision and to measured intra- and interlaboratory s_r.

Theoretically, the process of counting randomly (Poisson) distributed fibers on a filter surface will give an s. that depends on the number, N, of fibers counted:

$$s_r = 1/(N)^{1/2}$$
 (1)

Thus s_r is 0.1 for 100 fibers and 0.32 for 10 fibers counted. The actual s_r found in a number of studies is greater than these theoretical numbers [6,11,12,13].

An additional component of variability comes primarily from subjective laboratory-to-laboratory differences. In a study of ten counters in a continuing sample exchange program, Ogden [11] found this subjective component of intralaboratory s_r to be approximately 0.2 and estimated the overall s_r by the term:

$$\frac{(N + (0.2 \cdot N)^2)^{1/2}}{N} \tag{2}$$

8/15/87

7400-8

METHOD: 7400 FIBERS

Ogden found that the 90% confidence interval of the individual intralaboratory counts in relation to the means were $\pm 2~s_r$ and $\pm 1.5~s_r$. In this program, one sample out of ten was a quality control sample. For laboratories not engaged in an intensive quality assurance program, the subjective component of variability can be higher.

In a study of field sample results in 46 laboratories, the Asbestos Information Association [13] also found that the variability had both a constant component and one that depended on the fiber count. These results gave a subjective interlaboratory component of s_r (on the same basis as Ogden's) for field samples of ca. 0.45. A similar value was obtained for 12 laboratories analyzing a set of 24 field samples [19]. This value falls slightly above the range of s_r (0.25 to 0.42 for 1984-85) found for 80 reference laboratories in the NIOSH Proficiency Analytical Testing (PAT) program for laboratory—generated samples [12].

A number of factors influence s_r for a given laboratory, such as that laboratory's actual counting performance and the type of samples being analyzed. In the absence of other information, such as from an interlaboratory quality assurance program using field samples, the value for the subjective component of variability is chosen as 0.45. Note that, though based on at least two studies, this is a somewhat arbitrary choice. It is hoped that by the use of this number in the absence of other information, laboratories will carry out the recommended interlaboratory quality assurance programs to improve their performance and thus reduce the s_r.

The above relative standard deviations apply when the population mean has been determined. It is more useful, however, for laboratories to estimate the 90% confidence interval on the mean count from a single sample fiber count (Figure 1). These curves assume similar shapes of the count distribution for interlaboratory and intralaboratory results [11].

For example, if a sample yields a count of 24 fibers, Figure 1 indicates that the mean interlaboratory count will fall within the range of 227% above and 52% below that value 90% of the time. We can apply these percentages directly to the air concentrations as well. If, for instance, this sample (24 fibers counted) represented a 500-L volume, then the measured concentration is 0.02 fibers/mL (assuming 100 fields counted, 25-mm filter, 0.00785 mm² counting field area). If this same sample were counted by a group of laboratories, there is a 90% probability that the mean would fall between 0.01 and 0.08 fiber/mL. These limits should be reported in any comparison of results between laboratories.

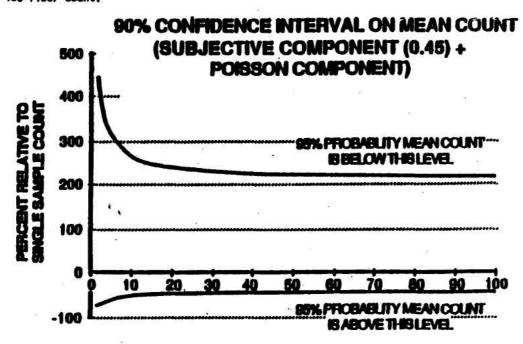
Note that the s_r of 0.45 used to derive Figure 1 is used as an estimate for a random group of laboratories. If several laboratories belonging to a quality assurance group can show that their interlaboratory s_r is smaller, then it is more correct to use that smaller s_r . However, the estimated s_r of 0.45 is to be used in the absence of such information. Note also that it has been found that s_r can be higher for certain types of samples, such as asbestos cement.

Quite often the estimated airborne concentration from an asbestos analysis is used to compare to a regulatory standard. For instance, if one is trying to show compliance with an 0.5 fiber/mL standard using a single sample on which 100 fibers have been counted, then Figure 1 indicates that the 0.5 fiber/mL standard must be 213% higher than the measured air concentration. This indicates that if one measures a fiber concentration of 0.16 fiber/mL (100 fibers counted), then the mean fiber count by a group of laboratories (of which the compliance laboratory might be one) has a 95% chance of being less than 0.5 fibers/mL; i.e., 0.16 + 2.13 x 0.16 = 0.5.

8/15/87

7400-9

It can be seen from Figure 1 that the Poisson component of the variability is not very important unless the number of fibers counted is small. Therefore, a further approximation is to simply use +213% and -49% as the upper and lower confidence values of the mean for a 100-fiber count.



MINIBER OF FIBERS COUNTED IN A SINGLE SAMPLE

Figure 1. Interlaboratory Precision of Fiber Counts

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8/15/87

7400-10

METHOD: 7400 FIBERS

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METHOD REVISED BY: James W. Carter, David G. Taylor, Ph.D., CIH, and Paul A. Baron, Ph.D., NIOSH/DPSE; based on the revised Method P&CAM 239 [2,4,8].

APPENDIX A: CALIBRATION OF THE WALTON-BECKETT GRATICULE:

Before ordering the Walton-Beckett graticule, the following calibration must be done to obtain a counting area (0) 100 μ m in diameter at the image plane. The diameter, d_c (mm), of the circular counting area and the disc diameter must be specified when ordering the graticule.

- Insert any available graticule into the eyepiece and focus so that the graticule lines are sharp and clear.
- 2. Set the appropriate interpupillary distance and, if applicable, reset the binocular head adjustment so that the magnification remains constant.

8/15/87

7400-11

FIBERS METHOD: 7400

3. Install the 40 to 45% phase objective.

- 4. Place a stage micrometer on the microscope object stage and focus the microscope on the graduated lines.
- 5. Measure the magnified grid length of the graticule, L_0 (µm), using the stage micrometer. 6. Remove the graticule from the microscope and measure its actual grid length, L_0 (mm). This can best be accomplished by using a stage fitted with verniers.
- 7. Calculate the circle diameter, d_c (mm), for the Walton-Beckett graticule:

$$d_C = \frac{L_B}{L_0} \times D$$
.

Example: If L_0 = 112 μ m, L_a = 4.5 mm and D = 100 μ m, then d_c = 4.02 mm.

8. Check the field diameter, 0 (acceptable range 100 $\mu m \pm 2 \mu m$) with a stage micrometer upon receipt of the graticule from the manufacturer. Determine field area (acceptable range $0.00785 \text{ mm}^2 \pm 0.00032 \text{ mm}^2$).

APPENDIX B: COMPARISON OF COUNTING RULES:

Figure 2 shows a Walton-Beckett graticule as seen through the microscope. Although the graticule incorporates the 3:1 aspect ratio, both the "A" and "B" rules will be discussed as they apply to the labeled fibers in the figure.

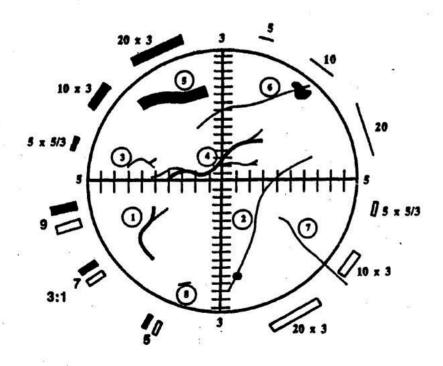


Figure 2. Walton-Beckett graticule with fibers.

| FIBER COUNT | | COUNT | B |
|-------------|-----------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fiber | A Rules | B Rules | DISCUSSION |
| 1 | 1 fiber | 3 ends | (A)"A" rules do not allow for split ends; therefore, count one fiber. (B) Under 'B' rules, first detemine whether the fiber meets dimensional criteria, (i.e., >5 µm, >5:1 aspect ratio, <3 µm diameter). Next determine and count which two ends are the main trunk of the fiber. Finally, count all split ends >5 µm as one end. Fiber #1 is counted as 3 ends. |
| . 2 | 1 fiber | 2 ends | (A) Single fiber with small particle attached. The particle is treated as if it does not exist by the "A" rules. (8) The particle is <3 µm diameter and therefore ignored under "B" rules. |
| 3 | 1 fiber | 2 ends | (A) As with Fiber 1, count one fiber under "A" rules because it meets the >3:1 aspect ratio, >5 µm criteria. (B) The split end is <5 µm long so it is not counted under "B" rules. |
| 4 | 1 fiber ` | 5 ends | (A) Fiber ends all attached to a central large fiber or bundle; therefore, count one fiber under "A" rules. (B) Count two ends as belonging to the main fiber. Three of the remaining four split ends are >5 µm, giving a total of 5 ends. |
| 5 | 1 fiber | Do not count | (A) No diameter limit under "A" rules; therefore count this thick fiber because it meets the >3:1, >5 µm counting criteria. (B) The fiber is >3 µm diameter; therefore not counted under "B" rules. |
| 6 | 1 fiber | 1 end | (A) Ignore non-fibrous particulate matter under the "A" rules; count this as a whole fiber. (B) The short end of the fiber is \$\infty\$ im long and obscured by a particle >3 \(\mu\) in diameter; therefore, not counted under "B" rules. |
| 7 | 1/2 fiber | 1 end | (A) Fibers which meet rules a.1. and a.2. and cross the graticule boundary are counted as 1/2 fiber under "A" rules unless the fiber crosses the graticule boundary more than once, in which case the fiber is not counted no matter how many ends lie within the graticule area. (B) Fiber ends lying inside the graticule boundary are counted as one end provided that the entire fiber meets rules b.1. and b.2. and each end is >5 µm. The portion of the fiber lying outside the graticule boundary must be considered in order to make this determination. Under "B" rules, it does not matter how often the fiber crosses the graticule boundary. |
| 8 | Do not count | Do not count | The fiber is um long. |

8/15/87

7400-13

TDD No. 06-9002-2708

ATTACHMENT 4
NIOSH Method 7402
(8 pages)

FORMULA: various ASBESTOS FIBERS
METHOD: 7402

M.W.: various ISSUED: 8/15/87

OSHA: 0.2 asbestos fibers (>5 µm long/mL) PROPERTIES: solid, NIOSH: 0.1 asbestos f/mL [1] fibrous

ACGIH: 0.2 crocidolite: 0.5 amosite: 2 chrysotile and other asbestos, f/mL

SYNONYMS: actinolite asbestos [CAS #13768-00-8], grunerite asbestos (amosite) [CAS #12172-73-5], anthophyllite asbestos [CAS #17068-78-9], chrysotile asbestos [CAS #12001-29-5], crocidolite asbestos [CAS #12001-28-4], tremolite asbestos [CAS #14567-73 9].

SAMPLING MEASUREMENT SAMPLER: FILTER ITECHNIQUE: MICROSCOPY, TRANSMISSION ELECTRON (0.8-to 1.2-um cellulose ester (TEM) membrane, 25-mm diameter: conductive cassette) IAMALYTE: asbestos fibers FLOW RATE*: 0.5 to 16 L/min (step 4) ISAMPLE PREPARATION: modified Jaffe wick VOL-MIM*: 400 L @ 0.1 fiber/mL (step 4) !EQUIPMENT: transmission electron microscope; -MAX*: (step 4) energy dispersive X-ray system (EDS) *Adjust for 100 to 1300 fibers/mm2 (step 4) analyzer SHIPMENT: routine (securely packed to reduce !CALIBRATION: qualitative electron diffraction; shock) calibration of TEM magnification and EOS system SAMPLE STABILITY: stable !RANGE: 100 to 1300 fibers/mm2 filter area [2] FIELD BLANKS: 10% (>2) of samples !ESTIMATED LOD: 1 confirmed asbestos fiber above **ACCURACY** 95% of expected mean blank value RANGE STUDIED: 80 to 100 fibers counted IPRECISION: 0.28 when 65% of fibers are asbestos: 0.20 when adjusted fiber count is BIAS: not determined applied to PCM count [3]. OVERALL PRECISION (s.): see EVALUATION OF METHOD

APPLICABILITY: The working range is 0.04 to 0.5 fiber/mL for a i-m⁹ air sample. The method measures asbestos fibers of the smallest diameter (<0.05 μ m) but allows comparison of fiber counts to be made with phase contrast light microscopic (PCH) data when fiber diameters are rigidly defined.

INTERFERENCES: Mon-asbestiform amphiboles may interfere in the TEM analysis if the individual particles have aspect ratios greater than 3:1. These interferences can only be eliminated by quantitative zone axis electron diffraction analysis. High concentrations of background dust interfere with fiber identification.

OTHER METHODS: NIOSH Method 7400 (dated 8/15/87) (phase-contrast microscopy) designed for use with this method.

8/15/87

7402-1

METHOD: 7402

REAGENTS:

1. Acetone. See SPECIAL PRECAUTIONS.

EQUIPMENT:

- Sampler: field monitor, 25-mm, three-piece cassette with ca. 50-mm electrically-conductive
 extension cowl, cellulose ester membrane filter, 0.8- to 1.2-µm pore size, and backup pad.
 NOTE 1: Analyze representative filters for fiber background before use. Discard the filter
 lot if mean count is >5 fibers/100 fields. These are defined as laboratory blanks.
 - NOTE 2: Use an electrically-conductive extension cowl to reduce electrostatic effects on fiber sampling and during sample shipment. Ground the cowl when possible during sampling.
- Personal sampling pump, ≥0.5 L/min (see step 4 for flow rate), with flexible connecting tubing.
- 3. Microscope, transmission electron, operated at 100 kV, with electron diffraction and energy-dispersive X-ray capabilities, and having a fluorescent screen with inscribed or overlaid calibrated scale (Step 15).

MOTE: The scale is most efficient if it consists of a series of lines inscribed on the screen or partial circles every 2 cm distant from the center.

- 4. Diffraction grating replica with known number of lines/mm.
- 5. Slides, glass, pre-cleaned, 25- x 75-mm.
- 6. Knife, #10 surgical steel, curved-blade.
- 7. Tweezers.
- 8. Grids, 200-mesh TEM copper, carbon-coated.
- Petri dishes, 15-mm depth. The top and bottom of the petri dish must fit snugly together.
 To assure a tight fit, grind the top and bottom pieces together with an abrasive such as carborundum to produce a ground-glass contact surface.
- 10. Foam, clean polyurethane, spongy, 12-mm thick.
- 11. Low-temperature oxygen plasma asher.
- 12. Filters, Whatman No. 1 qualitative paper or equivalent, or lens paper.
- 13. Vacuum evaporator.
- 14. Cork borer, No. 5 (8-mm).
- 15. Pen, waterproof, marking.
- 16. Reinforcement, page, gummed.
- 17. Asbestos standard bulk materials for reference.
- 18. Carbon rods, sharpened to 1 mm x 8 mm.
- 19. Microscope, light, phase contrast (PCM), with Halton-Beckett graticule (see method 7400).
- 20. Grounding wire, 22-gauge, multi-strand.

SPECIAL PRECAUTIONS: Acetone is extremely flammable (flash point = 0 °F). Take precautions not to ignite it. Heating of >1 mL acetone must be done in a fume hood using a flammeless, spark-free heat source.

SAMPLING:

- 1. Calibrate each personal sampling pump with a representative sampler in line [4].
- 2. For personal sampling, fasten sampler to worker's lapel near worker's mouth. Remove the top cover from end of the cowl extension (open face) and orient sampler face down. Wrap joint between extender and monitor body with shrink tape to prevent air leaks. Where possible, especially at low XRH, attach sampler to electrical ground to reduce electrostatic effects during sampling.

8/15/87

7402-2

- Submit at least two field blanks (or 10% of the total samples, whichever is greater) for
 each set of samples. Remove top covers from the field blank cassettes and store top covers
 and cassettes in a clean area (e.g., closed bag or box) during sampling. Replace top
 covers when sampling is completed.
- 4. Sample at 0.5 L/min or greater [5]. Adjust sampling rate, Q (L/min), and time, t (min). to produce fiber density, E, of 100 to 1300 fibers/mm² [3.85·10⁴ to 5·10⁵ fibers per 25-mm filter with effective collection area (A_C= 385 mm²)] for optimum accuracy. Do not exceed ca. 0.5 mg total dust loading on the filter. These variables are related to the action level (one-half the current standard), L (fibers/mL), of the fibrous aerosol being sampled by:

MOTE: The purpose of adjusting sampling times is to obtain optimum fiber loading on the filter. A sampling rate of 1 to 4 L/min for 8 hrs (700 to 2800 L) is appropriate in non-dusty atmospheres containing ca. 0.1 fiber/mL. Dusty atmospheres require smaller sample volumes (<400 L) to obtain countable samples. In such cases take snort, consecutive samples and average the results over the total collection time. For documenting episodic exposures, use high rates (7 to 16 L/min) over shorter sampling times. In relatively clean atmospheres, where targeted fiber concentrations are much less than 0.1 fiber/mL, use larger sample volumes (3000 to 10000 L) to achieve quantifiable loadings. Take care, however, not to overload the filter with background dust [5].

- 5. At the end of sampling, replace top cover and small end caps.
- Ship samples upright with conductive cowl attached in a rigid container with packing material to prevent jostling or damage.

NOTE: Do not use untreated polystyrene foam in the shipping container because electrostatic forces may cause fiber loss from sample filter.

SAMPLE PREPARATION:

- Remove a circular section from any quadrant of each sample and blank filter using a cork borer [6].
- 8. Affix the circular filter section to a clean glass slide with a gummed page reinforcement. Label the slide with a waterproof marking pen.
 MOTE: Up to eight filter sections may be attached to the same slide.
- Place the slide in a petri dish which contains several paper filters soaked with 2 to 3 mL acetone. Cover the dish. Wait 2 to 4 min for the sample filter(s) to fuse and clear.
 MOTE: The "hot block" clearing technique may be used instead of steps 8 and 9 [7,8].
- 10. Place the slide containing the collapsed filters into a low-temperature plasma asher. Etch at 100 °C for ca. 2 min at an O₂ pressure of 130 Pa (1 mm Hg) [9]. MOTE: Plasma ashers may vary. Determine optimum etching time (ca. 1/2 the time needed to completely ash a filter) on blank filters before etching samples.
- 11. Transfer the slide to a rotating stage inside the bell jar of a vacuum evaporator. Evaporate a 1- by 5-mm section of a graphite rod onto the cleared filter(s). Remove the slide to a clean, dry, covered petri dish [6].
- 12. Prepare a second petri dish as a Jaffe wick washer with the wicking substrate prepared from filter or lens paper placed on top of a 12-mm thick disk of clean, spongy polyurethane foam [10]. Cut a V-notch on the edge of the foam and filter paper. Use the V-notch as a reservoir for adding solvent.

NOTE: The wicking substrate should be thin enough to fit into the petri dish without touching the lid.

8/15/87

7402-3

WIOSH Manual of Analytical Methods

ASBESTOS FIBERS METHOD: 7402

- 13. Place the carbon-coated TEM grids face up on the filter or lens paper. Label the grids by marking with a pencil on the filter paper or by putting registration marks on the petri dish halves and marking with a waterproof marker on the dish lid. In a fume hood, fill the dish with acetone until the wicking substrate is saturated.
 NOTE: The level of acetone should be just high enough to saturate the filter paper without creating puddles.
- 14. Remove about a quarter section of the carbon-coated filter from the glass slide using a surgical knife and tweezers. Carefully place the excised filter, carbon side down, on the appropriately-labeled grid in the acetone-saturated petri dish. When all filter sections have been transferred, slowly add more solvent to the wedge-shaped trough to bring the acetone level up to the highest possible level without disturbing the sample preparations. Cover the petri dish. Elevate one side of the petri dish by placing a slide under it (allowing drops of condensed acetone to form near the edge rather than in the center where they would drip onto the grid preparation).

CALIBRATION AND QUALITY CONTROL:

- 15. Determine the TEM magnification on the fluorescent screen:
 - a. Define a field of view on the fluorescent screen either by markings or physical boundaries.
 - NOTE: The field of view must be measurable or previously inscribed with a scale or concentric circles (all scales should be metric) [10].
 - b. Insert a diffraction grating replica into the specimen holder and place into the microscope. Orient the replica so that the grating lines fall perpendicular to the scale on the TEM fluorescent screen. Ensure that goniometer stage tilt is zero.
 - c. Adjust microscope magnification to 10,000X. Measure the distance (mm) between the same relative positions (e.g., between left edges) of two widely-separated lines on the grating replica. Count the number of spaces between the lines. MOTE: On most microscopes the magnification is substantially constant only within the
 - central 8 to 10 cm diameter region of the fluorescent screen.
 d. Calculate the true magnification (M) on the fluorescent screen:

where: X = total distance (mm) between the two grating lines;

G = calibration constant of the grating replica (lines/mm);

Y = number of grating replica spaces counted

- After calibration, note the apparent sizes of 0.25 and 3.0 µm on the fluorescent screen. (These dimensions are essentially the diameter boundary limits for counting asbestos fibers by phase contrast microscopy.)
- 16. Measure 20 grid meetings at random on a 200-mesh copper grid by placing a grid on a glass slide and examining it under the PCM. Use the Walton-Beckett graticule to measure the grid opening diameters. Calculate an average graticule field diameter from the data and use this number to calculate the graticule field area for an average grid opening.
 NOTE: A grid opening is considered as one graticule field.
- Obtain reference selected area electron diffraction (SAED) or microdiffraction patterns from standard asbestos materials prepared for TEM analysis.
 - MOTE: This is a visual reference technique. No quantitative SAED analysis is required
 [10]. Microdiffraction may produce clearer patterns on very small fibers or fibers
 partially obscurred by other material.
 - a. Set the specimen holder at zero tilt.

8/15/87

1402-4

W105H Manual of Analytical Methods

- b. Center a fiber, focus, and center the smallest field-limiting aperture on the fiber. Use a 20-cm camera length and 10% binocular head. Obtain a diffraction pattern. Photograph each distinctive pattern and keep the photo for comparison to unknowns. NOTE: Not all fibers will present diffraction patterns. The objective lens current may need adjustment to give optimum pattern visibility. There are many more amphiboles which give diffraction patterns similar to the analytes named on p.7402-1. Some, but not all, of these can be eliminated by chemical separations. Also, some non-amphiboles (e.g., pyroxenes, some talc fibers) may interfere.
- 18. Acquire energy-dispersive X-ray (EDX) spectra on approximately 5 fibers having diameters between 0.25 and 0.5 µm of each asbestos variety obtained from standard reference materials [101.

NOTE: The sample may require tilting to obtain adequate signal. Use same tilt angle for all spectra.

- a. Prepare TEM grids of all asbestos varieties.
- b. Use acquisition times (at least 100 sec) sufficient to show a silicon peak at least 75% of the monitor screen height at a vertical scale of >500 counts per channel.
- c. Estimate the elemental peak heights visually as follows:
 - (1) Normalize all peaks to silicon (assigned an arbitrary value of 10).
 - (2) Visually interpret all other peaks present and assign values relative to the silicon peak.
 - (3) Determine an elemental profile for the fiber using the elements Na, Mg, Si, Ca, and Fe. Example: 0-4-10-3-<1 [10].
 - NOTE: In fibers other than asbestos, determination of A1, K, Ti, S, P, and F may also be required for fiber characterization.
 - (4) Determine a typical range of profiles for each asbestos variety and record the profiles for comparison to unknowns.

MEASUREMENT:

- 19. Perform a diffraction pattern inspection on all sample fibers counted under the TEM, using the procedures given in step 17. Assign the diffraction pattern to one of the following structures:
 - a. chrysotile:
 - b. amphibole:
 - c. ambiguous:
 - d. none.
 - NOTE: There are some crystalline substances which exhibit diffraction patterns similar to those of asbestos fibers. Hany of these, (brucite, halloysite, etc.) can be eliminated from consideration by chemistry. There are, however, several minerals (e.g., pyroxenes, massive amphiboles, and talc fibers) which are chemically similar to asbestos and can be considered interferences. The presence of these substances may warrant the use of more powerful diffraction pattern analysis before positive identification can be made. If interferences are suspected, morphology can play an important role in making positive identification.
- 20. Obtain EDX spectra in either the TEM or STEM modes from fibers on field samples using the procedure of step 18. Using the diffraction pattern and EDX spectrum, classify the fiber:
 - a. For a chrysotile structure, obtain EDX spectra on the first five fibers; one out of ten thereafter. Label the range profiles from 0-5-10-0-0 to 0-10-10-0 as "chrysotile."
 - b. For an amphibole structure, obtain EDX spectra on the first 10 fibers; one out of ten thereafter. Label profiles ca. 0-2-10-0-7 as "possible amosite"; profiles ca. 1-1-10-0-6 as "possible crocidolite"; profiles ca. 0-4-10-3-<1 as "possible tremolite"; and profiles ca. 0-3-10-0-1 as "possible anthophyllite."</p>

8/15/87

7402-5

N105H Manual of Analytical Methods

ASBESTOS FIBERS METHOD: 7402

NOTE: The range of profiles for the amphiboles will vary up to ±1 unit for each of the elements present according to the relative detector efficiency of the spectrometer.

- c. For an ambiguous structure, obtain EDX spectra on all fibers. Label profiles similar to the chrysotile profile as "possible chrysotile." Label profiles similar to the various amphiboles as "possible amphiboles." Label all others as "unknown" or "non-asbestos." NOTE: Fibers smaller than 0.2 µm in diameter may not produce sufficient peak heights to allow an elemental profile to be determined. Identify these fibers as "unknown".
- 21. Counting and Sizing:
 - a. Insert the sample into the specimen grid holder and scan the grid at zero tilt at low magnification (ca. 300 to 500%). Ensure that the carbon film is intact and unbroken over ca. 75% of the grid openings.
 - b. In order to determine how the grid should be sampled, estimate the number of fibers per grid opening during a low-magnification scan (ca. 1000x). This will allow the analyst to cover most of the area of the grid during the fiber count and analysis. Use the following rules when picking grid openings to count [10]:
 - (1) Light (S fibers per grid opening): count every grid opening in which the carbon film is intact.
 - (2) Moderate (5 to 25 fibers per grid opening): count every fifth grid opening. If the carbon film is damaged, proceed to the next available grid opening in which the film is intact.
 - (3) Heavy (>25 fibers per opening): count every tenth grid opening. If the carbon film is damaged, proceed to the next available opening in which the carbon film is intact.
 - c. Increase magnification to 10,000x. Begin counting at one end of the grid and systematically traverse the grid by rows, reversing direction at row ends. Count at least 2 field blanks per sample set to document possible contamination of the samples. Use the mean fiber count for the field blanks, B, in step 22. Count fibers and asbestos structures using the following rules:
 - NOTE: Microscopes which traverse nonlinearly or erratically, causing incomplete coverage of the grid opening are not suitable for asbestos analysis [11]. Before using a specific microscope for counting, it should be examined for accuracy and reproducibility of traverses.
 - Count all particles less than 3 µm diameter which meet the definition of a fiber (aspect ratio ≥3:1, with parallel sides).
 - MOTE: Particles which are of questionable morphology should be analyzed by SAED and EDX to aid in identification.
 - (2) Size each fiber as it is counted and record the diameter and length (mm):
 - (a) Move the fiber to the center of the screen. Read the length of the fiber directly from the scale on the screen.
 - MOTE: For fibers which extend beyond the field of view, the fiber must be moved and superimposed upon the scale until its entire length has been measured.
 - (b) When a fiber has been sized, return to the starting point and continue the traverse to the next fiber.
 - (3) Record other asbestos structures according to the following morphological definitions. Label combinations of these structures according to the dominant quality.
 - (a) Bundle compact arrangement of parallel fibers in which separate fibers or fibrils may only be visible at the ends or edges of the bundle.
 - NOTE: Asbestos bundles having aspect ratios of 3:1 ur greater and less them 3 µm in diameter are counted as fibers.

- (b) Cluster network of randomly-oriented interlocking fibers arranged so that no fiber is isolated from the group. Dimensions of clusters can only be roughly estimated and clusters are defined arbitrarily to consist of more than four individual fibers [10].
- (c) Matrix one or more fibers attached to or embedded in a non-asbesto's particle.
- (4) Count fibers which are partially obscured by the grid.
 - MOTE: If a fiber is partially obscured by the grid bar at the edge of the field of view, count it as a fiber greater than 5 µm only if more than 2.5 µm of fiber is visible. Otherwise, log the fiber as a "short" fiber, measuring only that portion which is visible.
- (5) When counting is complete, calculate the asbestos fiber fraction shorter than 5 µm and thinner than ca. 0.25 µm (the number of asbestos fibers which would be undetected by phase contrast microscopy).
- d. Size all fibers using the scale on the fluorescent screen.
 - MOTE: Data can be recorded directly off the screen in mm and later converted to um by computer. Count and record identified asbestos fibers and structures >1 µm long of all diameters [11]. However, when comparing TEM data to the PCM counts, all fibers, regardless of identification, greater than 5 µm long and between 0.25 and 3.0 µm diameter which have aspect ratios of 3:1 or greater should be included. This size adjustment is necessary to test comparability of counts between the two methods. If the size-adjusted counts show reasonable equivalency, then further analysis using the small-fiber data will show what fraction of airborne asbestos fibers is being missed by the PCM method.

CALCULATIONS:

 Calculate and report fiber density on the filter, E, by dividing the total fiber count F, minus the mean field blank count, B, by the number of fields counted, n, (for each sample), and the field area, A_f.

$$E = \frac{\left(\frac{F}{n_f} - \frac{B}{n_b}\right)}{A_f}, \text{ fibers/mm}^2$$

MOTE: The field area, A_f, is considered to be one grid opening, and the size may vary depending upon the type of grids used. This value is known from step 16.

23. Calculate and report the average concentration, C, (fibers/mL) of fibers in the air sample, V (L), using the effective collection area of the filter, A_C (385 mm² for a 25-mm filter):

$$C = \frac{(E)(A_C)}{V \cdot 10^9}$$

24. As an integral part of the report, give the model and manufacturer of the TEM as well as the model and manufacturer of the EDS system.

EVALUATION OF METHOD:

The TEM method has been shown to have a precision of $0.275~(s_p)$ in an evaluation of mixed amosite and wollastonite fibers. The estimate of the asbestos fraction, however, had a precision of $0.11~(s_p)$. When this fraction was applied to the PCM count, the overall precision of the combined analysis was 0.20~[3].

8/15/87

7402-7

WIOSH Manual of Analytical Methods

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METHOD WRITTEN BY: James W. Carter; Paul A. Baron, Ph.D.; and David G. Taylor, Ph.D.;



ecology and environment, inc.

QUALITY ASSURANCE SAMPLING PLAN ADDENDUM FORM

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ATTACHMENT K
Copy of Original TDD# T06-9002-08 and Amendment A under Contract #68-01-7368
(3 Pages)

| 1A. Cost Center: TS 1313 | | | TAT ZONE II C | | 2. No. T | :06-9002-08 |
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| 18. Account No.: | | AL DIRECTION DOCUMENT (TDD) | F90-1364 |
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| 3A. Priority | 4A. Estimate of | 5A. EPA Site Name: | 7. CERCLIS ID: |
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| 3B. Key EPA Contact: | 4B. Over- 4C. Non- time dedicated | 6. Source of Funds: Other | |
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ATTACHMENT L
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| 3A. Priority High Medium Low | 4A. Estimate of Total Hours: (b) (4) Total Costs: | 58. SSID No.: | stbank Asbestos 5C. City / County / State: | • | 7. CERCLIS ID: N/A 8A.Completion Date |
| 3B.Key EPA Contact: Name: Martin Phone: 655-2275 | 4B. Overtime Approved: Yes □ No | 6. Source of Fun | Marrero/Jefferso ds: □ Othér | | 8B.Reference Info: Yes Attache No Pick-up |
| 9. Type of Activity: CW/ | Monitoring | ERCLA Assessment oval Funded oval PRP (AO/CO) ite Monitoring | AS SPECII Special Project Analytical Project Corp. Special Project Preparedness UST FEMA | ☐ Qua ☐ Trai ☐ Prop ☐ Tec ☐ Info | lity Assurance |
| 10. General Task Descri | ption: <u>drive-wa</u> | essment of a ys, landfil: Westwego & | asbestos contamin l and other areas Harvey, LA | ated — in — | 11. Desired Report Form: S Formal Report Letter Report Formal Briefing Other (Specify) |
| who had b 2) Contact 1 photograp 3) Develop a 4) Coordinat potential cf threat 5) Locate a | egun an investo ocal government hs Site Sampling e with state/lo | Plan for ai ocal authori on, areas of etc.) | ties to track all asbestos, degree | | 13. Interim Deadlines. |
| 7) Consult w | brief OSC | REGEI | tono . | | |
| 14. Authorizing DPO: | ccepted / / □ | Signature Accepted with Excep | Petersew ptions (Attached) Reje | cted | 15. Date: 10/1/90 |
| , X | Kishur | TATI. Signature | | ##################################### | 10/1/90 |

| 1B. Account No.: ELA03755AA | | TECHNIC | AL DIRECTION | SENDINZESSESS-WO-0037 N DOCUMENT (TDD) VIRONMENT, INC. | Ameno | FY90-1364 |
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| 3A. Priority High Medium | 4A, Estima Total I (b) (4 Total (| lours: | 5A. EPA Site Na Westbank 5B. SSID No.: | Asbestos 5C. City/County/State: | | 7. CERCLIS ID: N/A 8. Completion Date: |
| 3B. Key EPA Contact: | 4B. Over- | 4C. Non- dedicated | N/A 6. Source of Fun | Marrero/Jefferson, | /LA | 4/30/91 |
| Name: Martin Phone: 655-2275 | Approved: | Approved: | | | <u>: </u> | 8A. Reference Info: Yes Attache No Pick-up |
| SPCC On-Scene | Monitoring | Site A Remo | ERCLA Assessment Eval Funded Eval PRP (AO/CO) Ite Monitoring | AS SPECIFII Special Project Analytical Project Preparedness UST FEMA | Qu Tra Pro | rality Assurance aining ogram Management chnical Assistance formation Management |
| 10. General Task Descrip | | | | ero. Westwego & Harve | y. LA | 11. Desired Report Form: Formal Report Letter Report Formal Briefing |
| | | | end completion | | | Other (Specify) |
| 1) Gather per | Original T | ODD speci | fic elements: from the sta | | | |
| 1) Gather per who had be | Original T tinent inf gun an inv | OD speci | fic elements: from the sta | | - | Other (Specify) |
| 1) Gather per who had be 2) Contact low 3) Develop a | Original Trinent information and inverse government of the Sample | OD speciormation restigation ment to ing Plan | fic elements: from the sta on attain histor for air and | : ate/local authorities r c aerial photographs bulk | s | |
| 1) Gather per who had be 2) Contact low 3) Develop a 4) Coordinate | Original Trinent information and inverse sal governous site Sample with state | ormation restigation ment to ing Plan | fic elements: from the sta on attain histor for air and authorities t | te/local authorities r c aerial photographs hulk to track all potentia | s | 13. Interim Deadlines: |
| 1) Gather per who had be 2) Contact los 3) Develop a 4) Coordinate sites (local | Original Trinent information and inverse Sample Sample with state stion, are | ormation restigation ment to ing Plan | fic elements: from the sta on attain histor for air and authorities t | : ate/local authorities r c aerial photographs bulk | s | 13. Interim Deadlines: |
| 1) Gather per who had be 2) Contact local 3) Develop a 4) Coordinate sites (local surrounding | original Trinent information and governous site Sample with state ation, are | ormation restigation ment to ing Plan e/local eas of as | fic elements: from the sta on attain histor for air and authorities t | te/local authorities c c aerial photographs hulk to track all potential ee of threat, | s | 13. Interim Deadlines: |
| 1) Gather per who had be 2) Contact local 3) Develop a 4) Coordinate sites (local surrounding | Original Trinent information and sover- Site Sample with state ation, are get, etc.) | iormation restigation ment to ing Plan re/local ras of as | fic elements: from the sta on attain histor for air and authorities to bestos, degre | te/local authorities c c aerial photographs hulk to track all potential ee of threat, | s | 13. Interim Deadlines: |
| 1) Gather per who had be 2) Contact los 3) Develop a 4) Coordinate sites (locate a co | original Trinent information and governous site Sample with state stion, are settified leaded out of the state of the stat | iormation restigation ment to ing Plan re/local ras of as | fic elements: from the sta on attain histor for air and authorities to bestos, degre | te/local authorities c c aerial photographs hulk to track all potential ee of threat, | s | 13. Interim Deadlines: |
| 1) Gather per who had be 2) Contact low 3) Develop a 4) Coordinate sites (location aurrounding 5) Locate a contact a | original Trinent information and governous site Sample with state ation, are gs. ttc.) ertified lancogocume orief OSC | iormation restigation ment to ing Plan re/local ras of as | fic elements: from the sta on attain histor for air and authorities to bestos, degre | te/local authorities c c aerial photographs hulk to track all potential ee of threat, | 1 | 13. Interim Deadlines: |
| 1) Gather per who had be 2) Contact los 3) Develop a 4) Coordinate sites (locate a coordinate a | original Trinent information and governous site Sample with state ation, are gs. ttc.) ertified lancogocume orief OSC | iormation restigation ment to ing Plan re/local ras of as | fic elements: from the sta on attain histor for air and authorities to bestos, degre | te/local authorities ric aerial photographs bulk to track all potential ee of threat, | s1VED. | 13. Interim Deadlines: |
| 1) Gather per who had be 2) Contact los 3) Develop a 4) Coordinate sites (locate a coordinate a | original Trinent information and governous site Sample with state ation, are gs. ttc.) ertified lancogocume orief OSC | iormation restigation ment to ing Plan re/local ras of as | fic elements: from the sta on attain histor for air and authorities to bestos, degree alyze the sam etc. | te/local authorities c aerial photographs hulk to track all potential ee of threat. RECEI ANIO | 1 VED. | 13. Interim Deadlines: |
| 1) Gather per who had be 2) Contact los 3) Develop a 4) Coordinate sites (loc surrounding 5) Locate a co 6) POLREP3. pl 7) Consult w/1 Re: TO6-9002-0 | original Trinent information and governous site Sample with state ation, are gs. ttc.) ertified lancogocume orief OSC | ormation restigation of the plan in the pl | fic elements: from the sta on attain histor for air and authorities to bestos, degre | te derial authorities contract all photographs hulk to track all potential ee of threat, aples RECEI AN10 Language A E Beton ions (Attached) | 1 VED. | 13. Interim Deadlines: N/A |

TROY M. NACUN
Print Originator's Name
Ecology and Environment, Inc.

RECORD OF COMMUNICATION

| Conversation with: | Date 01 / 07 / 9/ |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name John Martin - OSC EPA Region 6 | Time 9:00 (AB) PH |
| Address 1445 Pross avenue | Originator Placed Call |
| Dallas, TX 75202 | [] Originator Received Call |
| Phone 214 - 655 - 2275 | * * * * * * * * * * * * * * * * * * * * |
| (Area Codé) (Number) | TDD# E06-9010-5 4 PAN# ELA0375SAA |
| Subject WESTBANK ASBESTOS PROJECT | 100# 200-1010-2 † 1 mm 2 2 100 100 100 100 100 100 100 100 100 |
| Subject WESTBAIR ASSESTED THOSE OF | |
| Discussion: TAT contacted OSC 7 | |
| TOO date which the final. | got a due 1-31-91. OCC |
| agreed to amended the TOO | tell. 4-30-91. In addition; |
| OSC would like to conduct | a site visit in March |
| to goodbly confect a site a | ssessment including air, |
| bulls and personal sandling. | 0 |
| 0 0 | |
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| Pollow-Up-Action: | |
| | The state of the s |
| | |
| | No. Col. |
| Originator's (RWG 6/90) | Signatures Zooy M. Naguum |

1-3

| 1A. Cost Center: ZT1061 | | TAT ZONE II CONTRACT CONTRACT NO. 68-WO-0037 CAL DIRECTION DOCUMENT (TDD) | 2. No.: E06-9010-54 T FY90-1364 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| 1B. Account No.: ELA0375SAA | N | DLOGY AND ENVIRONMENT, INC. | Amendment B |
| 3A: Priority | 4A. Estimate of | 5A. EPA Site Name: | 7. CERCLIS ID: |
| X High | Total Hours: | WESTBANK ASBESTOS | N/A |
| ☐ Medium ☐ Low | Total Costs: | 5B. SSID No.: 5C. City / County / State: | 8A.Completion D |
| | \$56,000 | N/A MARRERO/JEFFERSON/I | _A |
| 3B. Key EPA Contact: | 4B. Overtime Approved: | 6. Source of Funds: Other | V Children Land |
| Name: Martin | XI Yes | Ö CERCLA ☐ OPA | 8B.Reference Inf |
| Phone: 655-2275 | □ No | □ UST — | No ☐ Pick |
| 9. Type of Activity: OF | PA C | ERCLA AS SPECIF | FIED ABOVE |
| ☐ SPCC ☐ On-Scene M ☐ Spill Clean- | Monitoring ☐ Remo | Assessment | ☐ Quality Assurance ☐ Training ☐ Program Management ☐ Technical Assistance ☐ Information Manageme |
| landfill and ot | Ther areas in Mar | | ☐ Cormal Rep ☐ Letter Rep ☐ Formal Brie ☐ Other (Spe |
| | | from the state/local authorities w | vho |
| | investigation | tain historic aerial photographs | 13. Interim Deadli |
| Way | e Sampling Plan i | | N/A |
| 4) Coordinate wi | th state/local au | thorities to track all potential | sites |
| 27 | | degree of threat, surroundings, e | |
| 5) Locate a cert | ified lab to anal | lyze the samples | |
| 6) POLREPs, phot | odocumentation, e | etc. | |
| 7) Consult w/bri | ef OSC | RECEIVI | ED |
| RE: T06-9002-08 | | MAY 01 19 | 991 |
| Į. | | E & E Baton Ro | ouge |
| 14. Authorizing DPO: | G | 2 Chis Petersen | 15. Date: 4/25/9 |
| 16. Received by: 💢 A | Accepted Chin | Accepted with Exceptions (Attached) | ected 17. Date: 4 3 /91 |
| Distribution: Sheet 1 White Sheet 2 Blue Sheet 3 Green Sheet 4 Canary Sheet 5 Pink Sheet 6 Goldenrod DPO Copy C CO Copy Sheet 6 Goldenrod DPO Criginal | (Unsigned by TATL) | | Delg . |

Print Originator's Name Ecology and Environment, Inc.

RECORD OF COMMUNICATION

| Conversation with: | Date 4 / 24 / 9/ (Ho) (Day) (Year) |
|----------------------------------------------|----------------------------------------------------------|
| Name John Martin | (Mo) (Day) (Year) Time // O5 AM/PM |
| Address EPA | Originator Placed Call |
| Dellan | [] Originator Received Call |
| Phone 2/4 - 655-2275 | |
| (Area Code) (Number) | PROJECT or CHARGE or TDD 06-9010-05% PAN ELAO 375 5 RA . |
| Subject TAN Amendment | |
| Subject / DI) Florend men! | |
| Discussion: Need to amend - | |
| How about and or | l Culy - |
| He thought the | Franced reasonable |
| 77 | |
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| * Mal Landit L | vel with Bailey's |
| THE THE CONTRACTOR FIRE | see mess requirements |
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| ollow-Up-Action: | |
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| | |
| Ori | ginator's Signature: An Klanny Janboe |
| RVG 6/90) | 2-5 |

000225.181

| 1A. Cost Center: ZT / 061 1B. Account No.: ELA0375SAA | TECHNIC | TAT ZONE II CO CONTRACT NO. 6 CAL DIRECTION DLOGY AND ENVIR | 8-WO-0037 DOCUMENT (TDD) | | : 6-9010-54 _{dment} <u>C</u> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------|
| 3A. Priority High Medium Low | 4A. Estimate of (b) (4) Total Costs: \$56,000 | 5A. EPA Site Na Westbank As 5B. SSID No.: N/A | (A) | -51 | 7. CERCLIS ID: N/A 8A.Completion Date |
| 3B. Key EPA Contact: Name: Martin Phone: (504) 655-2275 | 4B. Overtime Approved: x☐ Yes ☐ No | 6. Source of Fur | | | 09/30/91 8B.Reference Info: ☐ Yes ☐ Attache >☐ No ☐ Pick-up |
| ☐ SPCC ☐ On-Scene I ☐ Spill Clean | Monitoring ☐ Rem up Funded ☐ Rem | Assessment oval Funded oval PRP (AO/CO) lite Monitoring | Special Project Analytical Project Corp. Special Proje Preparedness UST | ct Pro | ality Assurance ning gram Management hnical Assistance rmation Management |
| (A | * ************************************ | | tos contaminated d | riveways | 11. Desired Report Form: Solution Formal Report |
| landfill and oth | mer areas in Marr IDD amended to ex specific element | ero, Westwego tend completions: | tos contaminated d | | Form: |
| landfill and oth 12. Specific Elements: 9 Original TDD 1) Gather pertin had begun and 2) Contact local | TOD amended to ex specific element ment information investigation | tend completions: from the state | tos contaminated di & Harvey, LA. on date e/local authoritie c aerial photograp | s who | Form: Formal Report Letter Report Formal Briefin Other (Specify |
| landfill and oth 12. Specific Elements: 9 Original TDD 1) Gather pertin had begun and 2) Contact local 3) Develop a Sid 4) Coordinate with (location, and | TOD amended to ex specific element ment information investigation I government to a te Sampling Plan ith state/local a | tend completions: from the state ttain historic for air and be uthorities to | tos contaminated di & Harvey, LA. on date e/local authoritie c aerial photograp ulk track all potenti | s who | Form: Formal Report Letter Report Formal Briefin Other (Specify N/A 13. Interim Deadlines |
| landfill and oth 12. Specific Elements: 9 Original TDD 1) Gather pertin had begun and 2) Contact local 3) Develop a Sid 4) Coordinate was (location, as | TDD amended to ex specific element ment information investigation I government to a te Sampling Plan ith state/local a reas of asbestos, tified lab to ana | tend completions: from the state ttain historic for air and be uthorities to degree of the | tos contaminated di & Harvey, LA. on date e/local authoritie c aerial photograp ulk track all potenti reat, surroundings les | s who hs al sites , etc.) | Form: Formal Report Letter Report Formal Briefin Other (Specify |